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African American female caretakers may be placed at a higher risk of cardiovascular disease due to parental demands and greater prevalence of cardiovascular co-morbid conditions in African American women. While it is known that diet quality contributes to cardiovascular disease risk, less is known about the role eating regulation plays in cardiovascular disease risk for African American female caretakers with children 12 years old or younger living in North Carolina. This three-phase cross-sectional mixed methods study included a needs assessment survey, individual interviews and feasibility testing of a nutrition intervention designed to reduce cardiovascular disease risk through modification of eating regulation and enhanced motivation.

The needs assessment survey identified factors that may help explain cardiovascular disease risk in the target population. Phase 1 results indicated that participants (*n*=82) were on average 36 years old (±8.9 years) with a BMI of 32kg/m^2. Participants reported frequent intake of highly processed foods and less than 50% reported engaging in regular physical activity. High blood pressure (19%), obesity (7%) and diabetes (6%) were the most frequently reported medical condition in this sample. Participants' eating regulation fell on a continuum from extrinsic motivation to intrinsic motivation with most (97%) needing moderate or no external motivators to regulate eating. African American female caretakers (96%) did not perceive themselves as having difficulty controlling overeating. Obese weight status and frequent intake of highly

processed foods suggest that overeating needed further investigation to better understanding the role of eating regulation in African American female caretakers.

Further investigation of overeating was completed through individual semi-structured interviews (*n*=8) in Phase 2 to identify concepts related to overeating. Participants were on average 33 years old, and more than 80% reported some college education. The following preliminary themes were revealed: diet-related autonomy and competence, behavioral capacity, barriers to eating healthy, cultural influence, behaviors and environments influence health-related goals, relationships, and emotional overeating. Additionally, situational eating behaviors related to COVID-19 were revealed. Overeating was defined as dynamic interactions among physical, psychological, cultural, environmental and social variables that override hunger and satiety cues.

Feasibility of a nutrition education intervention was examined to determine the acceptability of a workshop designed to reduce cardiovascular disease risk in Phase 3. Two participants (average age=37 years old) were college graduates and had full-time employment. Participants reported that the messaging, language and visuals were acceptable. Overall, results of this study suggest that overeating may play a role in cardiovascular disease risk for the target population and nutrition education may be an appropriate means to reduce their cardiovascular disease risk.

EATING REGULATION AND NUTRITION INTERVENTION AMONG AFRICAN AMERICAN WOMEN CARETAKERS OF YOUNG CHILDREN

by

Kendra Batten

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Approved by

_____
Committee Chair

To my mother, my best friend and confidante, whose support cannot be adequately described in a few words. Thank you for all that you do that goes unspoken but not unnoticed.

APPROVAL PAGE

This dissertation, written by Kendra Batten, has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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CHAPTER I

INTRODUCTION

According to the Centers for Disease Control and Prevention (CDC), cardiovascular disease is one of the top leading causes of death for Americans.[1] African Americans experience cardiovascular disease at a similar rate as other minority groups and non-Hispanic Caucasians. However, this group has a higher rate of cardiovascular-related death due to[2,3] higher rates of comorbid conditions such as obesity, hypertension, diabetes mellitus, and renal disease.[3] Interestingly, African American women represent the greatest proportion of those suffering from these diseases. According to the CDC, the prevalence of obesity is higher for African Americans than non-Hispanic Caucasians, Asians, and Hispanics, with African American women representing the greatest proportion of those considered obese.[4] African Americans (54.9%) experience hypertension at a higher rate than non-Hispanic Caucasians (47.3%)[5] despite only representing 13.4% of the U.S. population.[6] African American women are diagnosed with hypertension at a higher rate than non-Hispanic Caucasians and Hispanics.[7] As of 2018, African Americans are diagnosed with diabetes mellitus (11.7%) at a higher rate than the U.S. total population (8.2%). African American women are disproportionately burdened with diabetes as they have the second-highest rate of diabetes diagnosis compared to women of other racial and ethnic groups.[7] According to the National Institute of Diabetes and Digestive and Kidney Diseases, African Americans are more likely to experience

kidney failure, which is often attributed to hypertension and diabetes mellitus.[8] According to the U.S. Health and Human Services Office of Minority Health, African Americans are 10% more likely to report experiencing psychological distress than non-Hispanic Caucasians. They are also more likely to report experiencing depressive symptoms, including sadness, hopelessness, and difficulty completing tasks.[9] These statistics suggest that African American women's cardiovascular health requires greater attention from the medical community, policymakers, and other stakeholders. More specifically, greater attention should be given to African American female caretakers' cardiovascular health due to the transfer of modifiable risk factors and genetic predisposition to their children.

Caretakers of young children are of particular concern as parenting demands can increase stress10 and less time for self-care due to physical and mental fatigue.[11] Stress, in addition to the abovementioned cardiovascular disease risk factors, can increase cardiovascular disease risk.[12,13] Mochari-Greenberger and Mosca's study[14] revealed that caregivers who experience more caregiving burdens were less likely to perform cardioprotective behaviors, including consuming a healthy diet and engaging in regular physical activity. Given the relationship between stress and cardiovascular health,[15-17] it may be suggested that caretaker responsibilities place them at a higher risk for cardiovascular problems. Thus, it is critical to explore cardiovascular disease risk among this particular group further.

Examination of eating regulation can help explain cardiovascular health outcomes as it relates to dietary behaviors. Research has found a positive relationship between

excess food intake, particularly carbohydrate-rich and high sodium foods, and cardiovascular disease risk.[18,19] While Mochari-Greenberger and Mosca's study[14] provided evidence of a correlation between increased caregiving burden and decreased practice of heart-healthy behaviors, it neglected to examine the impact of eating regulation on the cardiovascular health of caretakers, which may have provided a more comprehensive understanding of cardiovascular disease risk in this population. Given the impact of eating regulation on cardiovascular health and the prevalence of cardiovascular disease risk factors in African American females, it is important to examine eating regulation among African American female caretakers.

This study aimed to develop and test the feasibility of a theoretically-based nutrition education workshop designed to reduce cardiovascular disease risk in African American female caretakers at least 18 years old with young children living in Guilford County, North Carolina. The nutrition education workshop was adapted from the Eat Healthy, Be Active Community Workshops Program, and utilized Social Cognitive and Self-Determination Theories.

Specific Aims

The following three aims were employed to achieve the goal.

Specific Aim 1: To assess the nutritional needs, cardiovascular disease risk factors, and psychosocial characteristics of African American female caretakers with children 12 years old and younger.

Specific Aim 2: To assess African American female caretakers' definition of overeating.

Specific Aim 3: To utilize theoretical constructs to revise an existing nutrition education curriculum focused on cardiovascular health for African American female caretakers to include eating regulation and to assess the acceptability of the revised messaging.

Innovation

Prior research on the diet-related behaviors of African American women has focused on increasing nutrition knowledge[20] and social support[21,22] and reducing environmental barriers.[23] While these approaches have shown some success in improving cardiovascular-related conditions, results are often short-term.[24] There is a limited number of research studies investigating the impact of psychological factors on this population's dietary behaviors. This research aimed to provide insight into psychological determinants, including autonomy, competence, self-efficacy, perceived barriers, and behavioral capacity that influence African American women's diet-related behaviors. Specifically, this research examined African American female caretakers' diet-related autonomy, competence, behavioral capacity, self-efficacy, and perceived barriers as they relate to overeating. Also, specific to competence, it takes a closer look at the personal meaning attached to dietary-related behaviors that they perceive themselves capable of performing and the degree of autonomous behavior related to eating regulation. Based on a review of published literature, this may be the first attempt to identify and explore psychological and behavioral determinants related to cardiovascular disease risk in this population in this area of the United States.

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CHAPTER II

LITERATURE REVIEW

Research has shown that diets low in fruits, vegetables, whole grains, and lean protein and high in saturated fat, salt, and sugar are associated with poor health. Individuals who consume below recommended intakes of fruits and vegetables and high amounts of saturated fat and salt have an increased likelihood of developing cardiovascular disease[1,2] and cardiovascular disease risk factors such as obesity, diabetes mellitus,[3] and hypertension.[4,5] This dietary pattern may be particularly problematic for African Americans who live in North Carolina since 182.2 per 100,000 African Americans in North Carolina experience death due to heart disease[6] and other co-morbid conditions. African Americans are reported to experience hypertension at a greater rate than non-Hispanic Caucasians, Asians, and Hispanics.[7] African American adults were diagnosed with diabetes at a higher rate compared to Asians and non-Hispanic Caucasians based on data from 2017 to 2018.[8] The CDC's obesity data indicate non-Hispanic Caucasians and non-Hispanic African American men have similar obesity rates (44.7% non-Hispanic Caucasian men, 39.8% non-Hispanic Caucasian women, 41.1% African American men), whereas the rate of obesity among non-Hispanic African American women is 56.9%.[9] Current evidence suggests that African American females have an increased likelihood of experiencing cardiovascular disease (CVD) and its comorbid conditions. While the types of foods consumed play a role in increasing CVD

risk, the amount of foods consumed is just as important.[3] Thus, eating regulation, or overeating, is a risk factor. Research has shown a direct correlation between overeating and cardiovascular risk[4,10] indicating a need to further explore these behaviors.

Eating Regulation

Given that overeating is associated with excess weight[3,11] and African American women represent 56.9% of obese individuals,[9] it is important to explore the role of eating regulation in the cardiovascular disease risk of African American women. Eating regulation is defined as the cognitive, behavioral, and physiological cues used to determine appropriate food intake.[12,13,14] Many factors may impact eating regulation or overeating. The first to be addressed is the social environment, which may influence diet-related behaviors through social networks.[15] Social networks can influence many components of dietary habits, including food choice, food intake,[16,17] and food preference,[18] suggesting that social environment may impact cardiovascular disease risk through eating regulation.

Social Environment and Eating Regulation

Cruwys's review of the impact of social influence on food intake and food choice indicates that eating regulation is determined by group identification and information seeking about acceptable eating behavior.[16] It was suggested that weight status was not a moderating factor between social influence and eating regulation. It is noteworthy that gender may impact eating regulation, particularly among females. Women are more likely to adjust their food intake to match their eating companion to follow the "thin ideal" body image. Additionally, this review pointed out that modeling may be observed

more frequently in the consumption of highly palatable food compared to less palatable food. These findings suggest that women's eating regulation may be vulnerable to less healthy eating behaviors due to a desire to identify with a particular group, a need for guidance in appropriate eating behaviors in the presence of others, and adherence to the "thin ideal" beauty standard. While African American women do not necessarily subscribe to the "thin ideal" beauty standard,[19] their eating regulation may be influenced by group identification and information seeking regarding appropriate eating behaviors, as these variables can be applied across demographics. Equally important in eating regulation are food choice and taste preference.[20]

Mollen et al.[20] investigated the influence of actual and perceived social norms on food choice. Researchers observed that healthy social norms, regardless of the type, resulted in healthier eating compared to unhealthy social norms. They did not find that the intake of less healthy food was affected by either social norm type. This study's findings are particularly important as it was conducted in a natural setting instead of a laboratory, thus providing a more realistic view of eating regulation. This study suggests that social norms do influence food preference. Given that meals often occur in a social context, it is not unusual that eating regulation would be influenced by the actions and beliefs of social networks. These studies indicate that social environment, particularly social norms, group identification, and information-seeking, contribute to eating regulation. While the social environment influences eating regulation, physiological and psychological factors may also contribute to diet-related behaviors.

Psychological and Physiological Factors that Affect Eating Regulation

Borer[21] indicated that human bodies are programmed to overeat energy-dense foods in the absence of hunger, and weight loss is difficult due to internal and external mechanisms designed to support weight maintenance. This review noted that physiological mechanisms support the overconsumption of highly palatable, energy-dense food, and oppose fat loss. The challenges to weight loss and healthy weight maintenance mentioned in this research suggest that individuals confront significant barriers to managing their health through diet and exercise alone.

Specific to cognitive and behavioral processes, psychology is associated with food choice and eating regulation. Boggiano et al.[18] provided evidence that eating to cope was positively associated with body mass index in a multiethnic sample of college students. Specifically, those who had a higher body mass index consumed more calories when faced with negative emotions. This study suggests that dysregulated eating may increase the consumption of highly palatable food and promote overeating behavior. Racine and Horvath's research[22] examined emotional dysregulation in a sample of college females that self-reported binge eating, overeating, and loss of control eating. Results suggest that emotional dysregulation, particularly lack of emotional clarity and unwillingness to accept emotion, is related to overeating. Additionally, those who overeat are more likely to experience emotional dysregulation, which may be a bi-directional relationship. This indicates that difficulty with emotion control may result in less healthy eating regulation behaviors. O'Neill, Kamper-DeMarco, Chen, and Oro's research[23] expanded knowledge about the role of psychology on eating by examining specific

psychological variables in a sample of community women. These researchers examined relationships among stress, executive functioning, body mass index, and disinhibited eating. Results revealed a direct relationship between disinhibited eating and reduced executive functioning, and an indirect relationship between stress and disinhibited eating mediated by stress. These results suggest that reduced executive functioning diminishes a person's ability to make purposeful decisions about eating regulation, therefore increasing the likelihood that disinhibited eating may occur. These studies imply that psychology plays a significant role in overeating in females, particularly when negative emotions are not adequately managed. In addition to the neurological, psychological, and social variables, spirituality and culture, particularly among African American groups, must be considered to have a comprehensive understanding of eating regulation in the target population. Eating patterns are partially explained by the shared thoughts, beliefs, and attitudes of a group,[24] which may influence eating regulation.

Spirituality

Spirituality, which can be a part of the broad concept of culture, is a contributing factor in the healthcare decision-making of African Americans.[25] Swierad et al.'s research[25] examined how ethnic and mainstream cultures impacted the healthcare decision-making of African Americans. Results revealed that African American culture plays an important role in determining dietary intake and physical activity. Participants reported that spirituality was considered a positive influence on health. Greer and Abel's research[26] examined how religious or spiritual beliefs impacted adherence to hypertension treatment in African American women. Like Swierad et al.'s research,

African American women relied on religion or spirituality to guide their healthcare decision-making. These studies indicate that spirituality is important to African American healthcare and may impact dietary behaviors, including eating regulation.

Cultural Influences

Culture plays a significant role in the diet-related behaviors of African Americans. Fried foods prepared with saturated fats and excess salt has played a significant role in the diet of African Americans for many generations as a means of preserving an aspect of African American culture in the United States.[27,28] Llewellyn, Cornelius, and Simpson[28] examined perceptions about obesity, health, and health behaviors in middle-aged, middle, and working class African American and Caribbean American women through focus group interviews. These interviews revealed that food preparation methods, traditional foods, and perception of obesity varied. African American and Caribbean American women believed good health included a balance among physical, mental, and spiritual health. Specific to physical health, good health was defined by a lack of dependence on prescription medication, being physically active, and preparing healthy foods eaten in moderation. It is noteworthy that emotional eating was described as a barrier to achieving good health. Specific to African American women, traditional food preparation methods were related to cardiovascular-related conditions that they wanted to avoid or improve. This suggests that African American women recognize that traditional food preparation methods may not support good physical health, although adopting healthier food preparation methods may not be easy.[29] According to James,[30] adopting cooking methods that use less saturated fat and salt may be difficult due to a desire to honor a part of

African American culture related to dietary patterns introduced during slavery in the United States. These studies show that preserving African American culture through traditional food preparation methods and the desire to practice healthier eating habits may conflict, thus hampering attempts to improve cardiovascular health through diet and diet-related behaviors. Food preparation is one aspect of African American culture that shapes dietary behaviors; however, acceptance of Western beauty standards[31,32] should be considered given its potential to impact eating regulation.[33]

Beauty Standards

Research has shown that acceptance of Western beauty standards can influence the food and dietary behaviors of women. The Drive for Thinness Theory, which is often used to explain Western beauty standards and eating regulation, suggests that women who believe a thin body is preferred for good health or social acceptance are more likely to participate in unhealthy dietary behaviors[34] and exhibit eating disorder symptoms.[33] It is important to note that eating disorder symptoms such as overeating do not meet psychiatric diagnostic criteria. There is overlap among eating disorder symptoms and eating disorders; however, a distinction is made based on frequency, intensity, and duration with eating disorders presenting with greater severity. Bodell et al.[34] found a mediating effect of the drive for thinness on weight suppression and bulimic symptoms for both men and women. Gordon et al.[33] examined the relationship between acculturation-related stress, body image, and eating disorder symptoms in a sample of African American, Caucasian, and Latina female college students. Study results indicate a direct correlation between eating disorder symptoms and body image among all ethnic

groups. While African American participants reported a lower frequency of bulimic symptoms, drive for thinness, and body dissatisfaction than their counterparts, discrepancies between perceived body shape and perceived U.S. mainstream and perceived ethnic group body ideal predicted body dissatisfaction. This may suggest that perceived body shape is more relevant than accepting larger body shape and body satisfaction when evaluating dietary behaviors in this population. Additionally, this study found a relationship between acculturative stress and bulimic symptoms in this sample of African American women. Thus, African American women may resort to unhealthy eating regulation behaviors to achieve a preferred body type.

On the other hand, women who subscribe to a beauty ideal that accepts a larger body size may be likely to engage in dietary behaviors that support weight gain,[35] thus increasing their likelihood of becoming overweight or obese. Baruth et al.[35] examined barriers to eating healthy and physical activity for women through focus group interviews. Several themes emerged for barriers to healthy eating, one of which was race and culture. Respondents reported that they did not want to "lose their curves," noting that African American women may consume high-fat foods to gain weight. African American women who subscribe to a beauty ideal that promotes larger, curvier bodies may consume more energy-dense foods to achieve this preferred body type.

Research suggests that non-Hispanic Caucasian women are more likely to adopt the Drive for Thinness Theory; however, results have been inconclusive for African American women.[29,36] Sabik et al.[36] measured appearance self-esteem, interaction and engagement with other ethnic groups, weight-based self-worth, and drive for thinness

among Asian Americans, non-Hispanic Caucasian, and African American female college students. Researchers found that there were racial and ethnic differences in these variables. Specific to African American women, greater engagement with other ethnic groups, a component of ethnic identity, moderates the relationship between appearance self-esteem and drive for thinness. Those who engage more with ethnic groups other than their own may be more likely to subscribe to the thin ideal, suggesting that greater engagement with their own ethnic group may be a buffer against unhealthy dietary behaviors. Cameron et al.[29] investigated African American women's beliefs on body image, healthfulness, and barriers to both through qualitative interviews. Findings revealed a lack of full acceptance of health indicators used by the medical community as indicators of good health and obesity and a lack of acceptance of the thin body ideal. This sample of African American women reported that good health includes a balance of physical, mental, and spiritual factors, as well as the ability to carry out routine activities. Some of the barriers to health included socioeconomic status, adherence to traditional food preparation methods, and parental obligations. Though not unexpected, socioeconomic status was identified as a barrier to food and nutrition goals. These results suggest that socioeconomic status, discrepancies in indicators of good health and lack of acceptance of the thin ideal body ideal are relevant factors in the health and food- and nutrition-related decision making of African American women.

A definitive conclusion about the impact of beauty standards on African American women's dietary behaviors has been difficult to make in part due to inconsistent investigation of ethnically-relevant psychosocial and cultural variables for

African Americans, such as cultural identity. However, recent studies suggest that strong ethnic identity may act as a buffer against Drive for Thinness ideals,[36,37] thereby reducing the likelihood that African American females experience maladaptive eating patterns. Cotter et al.[37] investigated the utility of the Body Appreciation Scale and the impact of ethnic identity on body appreciation in a sample of African American women. Concerning body appreciation, those with greater ethnic identity had more positive body appreciation, higher self-esteem, and fewer reported concerns about eating. It is interesting that internalization of the thin body ideal mediated the relationship between ethnic identity and eating, weight and shape concerns; suggesting that ethnic identity may be less of a protective factor against eating, weight and shape concerns for those who accept the thin beauty ideal. For some African American women ethnic identity is not a protective factor; possibly creating an opportunity to practice less healthy eating patterns to achieve a particular body ideal. As pointed out earlier, some African American women may consume more calories than needed to achieve a larger body size[35] so this coupled with a strong ethnic identity may predispose some to eat more than necessary. Absence of consensus on beauty standards accepted by African American women, food preparation methods, physiological and psychological variables can threaten motivation to change dietary behaviors such as eating regulation. Motivation, particularly motivation type, is important in persistence toward goals in general[38,39] and thus may be helpful in adopting and maintaining new dietary behaviors.

Importance of Motivation

Motivation, as defined by Deci and Ryan,[40] is an energized or active state that assists one in persisting toward a goal or task. Extrinsically motivated action, defined as action initiated by fear, guilt, shame, or pursuit of an external reward, has been associated with short-term success for various goals.[41] Research has shown that those who pursue externally motivated goals are more likely to experience poor mental health outcomes such as depression and anxiety.[42] Intrinsic motivation is defined as pursuing goals without external coercion, which are often done with innate enjoyment.[40] Ling et al. examined the moderating effects of intrinsic and extrinsic goals on stress and depressive students in Chinese college students. This study revealed that those with higher levels of intrinsic goals experienced fewer depressive symptoms when confronting academic and social problems than those with lower levels of intrinsic goals. These results provide evidence that those who are more intrinsically motivated experience less psychological distress. While study results are limited to one ethnic minority group, it suggests that intrinsic motivation benefits may be applicable to other ethnic minority groups.

Researchers[43,44] found that motivation directed toward one task may prompt action in other areas. Specifically, researchers found that physical activity motivation was related to a change in dietary habits in a community sample. Research suggests that those who are intrinsically motivated were more likely to experience longer-term weight loss maintenance.[45] Silva et al. examined exercise-related predictors of long-term weight loss maintenance by looking at sustained exercise participation and weight change motivation due to exposure to a theoretically-focused intervention in overweight/obese women.

Results suggest that those with autonomous or intrinsic motivation and sustained exercise regimens are better able to maintain weight loss than with controlled or extrinsic motivation. These findings indicate that autonomous or intrinsic motivation helps achieve and maintain some health behaviors. These studies highlight that change in motivation from extrinsic to intrinsic may help African American females initiate and maintain new dietary behaviors that support positive cardiovascular health. The transition from extrinsic to intrinsic motivation for eating regulation has been observed through the use of interventions.[46]

Impact of Interventions on Eating Regulation

Recent research on weight-focused interventions has begun to focus on eating regulation to help individuals manage their weight.[18] Out of this research, eating regulation has emerged as a significant contributor to understanding weight management and the contexts that support and hamper it. According to Tapper,[46] evidence regarding the benefit of mindfulness-based weight management interventions designed to improve eating regulation is inconclusive due to methodological differences. A few studies in this review indicate that mindfulness-based weight management interventions improve eating regulation though results did not reach statistical significance. Despite the lack of statistical significance, clinical significance may be realized and thus beneficial to those exposed to mindfulness training for eating regulation. The utilization of theory to guide these interventions may have improved the effect on eating regulation. Research suggest that theories are helpful in explaining the influence of determinants on health behaviors[47] and therefore may improve the efficacy of interventions and health outcomes.

Theoretical Foundation

Self-Determination Theory (SDT) proposes that psychological growth and development occur when the psychological needs of autonomy, relatedness, and competence are met in supportive conditions. Supportive conditions enhance autonomous motivation and improve general well-being. This theory is a combination of six theories that emphasize motivation and personality functioning.[48] Motivation to act falls along a continuum from controlled motivation to autonomous motivation, with autonomous motivation supporting long-term behavior change or goal accomplishment.[40] Self-Determination Theory is frequently used to explain intrinsic and extrinsic motivation and the process by which the transition from extrinsic to intrinsic occurs. Research suggests that SDT has helped explain health behaviors such as physical activity.[45,49]

Current research has shown a relationship between Self-Determination Theory and improved health behavior outcomes. Self-Determination Theory posits that satisfaction of the innate human needs of autonomy, competence, and relatedness are necessary for positive psychological growth and well-being. Autonomy describes an individual's desire to start a task of one's own volition. Additionally, autonomy describes a motivation continuum from extrinsic to intrinsic. Competence refers to the perceived ability to accomplish personally meaningful tasks. It is the personal meaning attached to the task or goal that motivates a person to work toward task or goal completion. Relatedness refers to an individual's desire to start and maintain close, personal relationships. Some research has pointed to the relevance of relatedness in health behavior change, though the association is not clear[40,50] or well-studied in current

nutrition or dietary research. Researchers found evidence that autonomous support from important others was associated with improved dietary habits and physical activity in a multiethnic sample.[51] Though this study included important others, such as family members, motivation type appeared to have a more significant influence on study outcomes than a personal relationship. Kinnafick et al.[52] revealed an increase in competence improved adherence in a walking intervention for middle-aged women. Specifically, this research found that competence is essential in adopting physical activity, suggesting that competence is important for adopting other health-related behaviors, including diet-related behaviors. Based on these studies, SDT has the potential to explain the diet-related behaviors of African American female caretakers through autonomy and competence. While SDT may address the health behaviors of African Americans as they relate to autonomy and competence, it does not examine health behaviors better explained through the lens of perceived barriers and behavioral capacity included in Social Cognitive Theory.

Social Cognitive Theory (SCT) proposes that action and motivation are determined by personal cognition, behavior, and environmental factors, which are reciprocal. Personal cognitions are the thoughts, attitudes, and beliefs of an individual. Behavior refers to food- and nutrition-related skills and knowledge, and environment is the physical and social factors that influence behavior.[47] Behaviors are managed by self-regulation and self-monitoring[53] to support goal achievement.

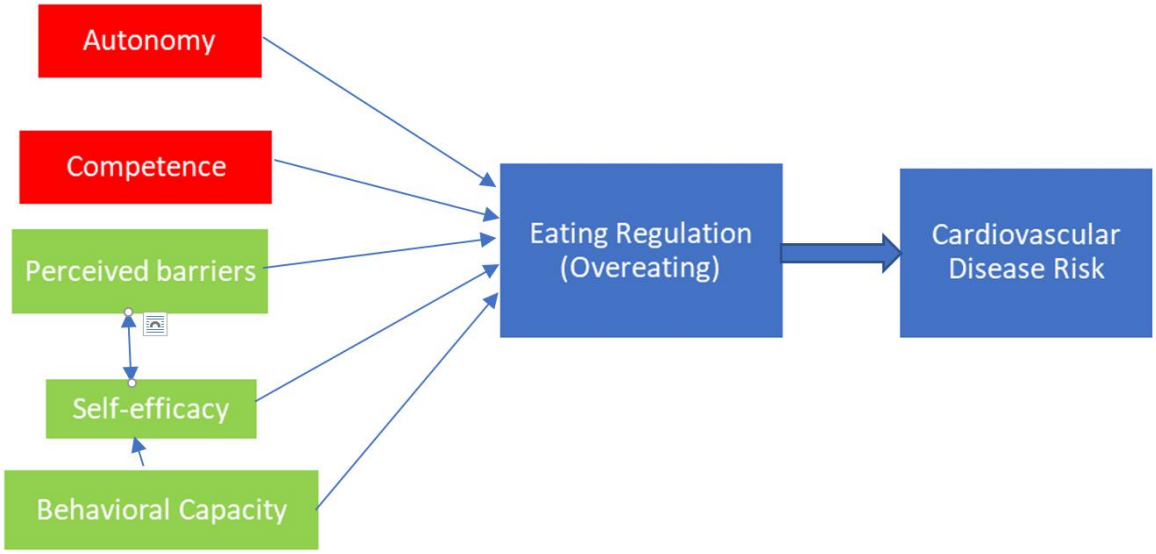
Social Cognitive Theory has been used to identify and explain the health behaviors of African Americans[54] and has been shown to improve health behaviors in the

general population and other racial and ethnic minority populations. SCT constructs, specifically self-efficacy, behavior capacity, and perceived barriers, can help ensure the successful maintenance of new behaviors. Annesi[55] revealed that an increase in self-efficacy for controlled eating and exercise prompted an improvement in emotional eating and physical activity, respectively, in a sample of obese adult women. Jarpe-Ratner et al.[56] provided evidence that an increase in cooking self-efficacy resulted in increased vegetable consumption in low-income Hispanic and African American grade-school children. These studies provide evidence that SCT-based interventions can effectively influence diet-related behaviors. Despite the potential utility of SDT and SCT in improving cardiovascular health through nutrition education for the target population, lack of evidence makes it challenging to reach conclusions without additional research.

Based on this literature search, a limited number of research studies have explored the utilization of SDT-based constructs to identify and explain African Americans' health behaviors. Given SCT's success in identifying and improving health behaviors in African Americans and SDT's usefulness in explaining motivation, it is suggested that an intervention guided by SDT and SCT may help reduce cardiovascular disease risk factors in African American female caretakers of young children by exploring eating regulation, diet-related autonomy, competence, behavioral capacity, perceived barriers, and self-efficacy.

Figure 1

Conceptual Model



This conceptual model represents the potential pathway to cardiovascular disease risk reduction in African American female caretakers with young children. Autonomy and competence and perceived barriers, self-efficacy, and behavioral capacity influence eating regulation, or overeating in this model. Perceived barriers and self-efficacy have a dynamic, reciprocal relationship, while behavioral capacity has a unidirectional relationship with self-efficacy.

African American female caretakers with young children may have a higher risk of cardiovascular disease than other populations due to several psychological, social, and cultural variables. However, little is known about the impact of these cardiovascular disease risk factors for this population due to a lack of data. Given the level of potential risk, research is warranted to understand these variables better. This will be accomplished

through a needs assessment survey, which will provide an accurate picture of these risk factors.

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CHAPTER III

ASSESSING PSYCHOLOGICAL FACTORS THAT IMPACT EATING REGULATION OF AFRICAN AMERICAN FEMALE CARETAKERS WITH YOUNG CHILDREN

Introduction

African American women share a greater burden of cardiovascular disease risk than other racial and ethnic groups due to comorbid conditions such as obesity[1] and diabetes.[2] African American female caretakers are an under-studied group who share similar cardiovascular disease risk as African American women due to common sociodemographic characteristics. Attention should be given to African American female caretakers' cardiovascular health due to the transfer of modifiable risk factors to their children, such as dietary behaviors and diet quality.

The health of caretakers with young children is of particular concern as parenting duties can increase stress[3] and less time available for self-care due to physical and mental fatigue.[4] Mochari-Greenberger and Mosca's study[5] revealed that those with increased caregiving burdens were less likely to perform cardioprotective behaviors, including consuming a healthy diet and engaging in regular physical activity. Given the relationship between stress and cardiovascular health,[6-8] caregiver responsibilities place them at greater risk for cardiovascular disease. Thus, it is imperative to explore the cardiovascular disease risk further.

A consistent association between eating regulation, in this case, overeating, and cardiovascular disease risk has been shown through excess consumption of high-energy, nutrient-poor foods.[9,10] The relationship between added sugar intake and cardiovascular disease-related death was particularly salient for African Americans. They had a higher percentage of intake than their Mexican-American and non-Hispanic Caucasian counterparts,[11] which places them at an increased risk of cardiovascular disease. Dietary behavior, specifically eating regulation, is multifactorial and also explained by cognitive, behavioral, social, and psychological variables.[12,13]

Social norms influence eating regulation through food choices. Research has found that social norms influence whether an individual chooses a healthier food option.[12] Given that many meals and snacks are eaten with others, total caloric intake may be significantly and negatively affected by group eating norms. This indicates that social norms contribute to eating regulation by observing and modeling others' eating behaviors. Though the social environment is a salient factor in eating regulation, attention should be given to psychological factors such as emotion.

Research has shown a consistent relationship between emotion and eating regulation, particularly for negative emotions such as depression.[14,15] Emotions and eating regulation that are not managed in a healthy manner can impact physical[16] and mental health.[17] In addition to social and emotional variables that influence eating regulation, other psychological constructs rooted in motivation, specifically autonomy and competence, impact eating regulation.

Autonomy describes an individual's desire to start a task of their own volition.[18] The supporting or thwarting of autonomy will help determine if an individual persists toward goal completion.[18] Environmental supports in the form of verbal feedback and freedom of choice can support autonomous behavior in general[19] but particularly eating regulation.[20,21] Competence refers to the perceived ability to accomplish personally meaningful tasks.[22] As with autonomy, environmental supports can enhance competence,[19] which supports behavior change.[23,24] These studies suggest that autonomy and competence help promote behavior change and help understand eating regulation in the target population. In addition to appreciating how psychology impacts eating regulation, it is important to understand African Americans' general psychological health. Research has consistently shown a relationship between psychological health and dietary behaviors,[25] which suggests its importance in understanding African Americans' eating regulation.

Regarding overall psychological health, African Americans are almost twice as likely to report some depressive symptoms than non-Hispanic Caucasians.[26] Psychological health is a relevant factor in eating regulation,[27] and given that African Americans may experience greater psychological distress,[28] poor eating regulation may be a cardiovascular disease risk factor. Research presented here indicates that cognitive and psychological processes influence eating regulation. Psychological and social constructs influence beauty standards,[29] which have been shown to influence eating regulation in women.[30]

The Drive for Thinness Theory, which is associated with Western beauty standards, suggests that women may be more likely to perform unhealthy dietary behaviors[30] to be healthy and accepted socially. Some women subscribe to a beauty ideal that accepts a larger body size and may be more likely to engage in dietary behaviors that support weight gain,[31] thus increasing their likelihood of gaining excess weight. Baruth et al.[31] reported that they did not want to "lose their curves," noting that African American women may consume high-fat foods to gain weight. African American women who subscribe to a beauty ideal that promotes larger, curvier bodies may overeat highly palatable, energy-dense foods to achieve a larger body type. While intangible processes such as psychology influence eating regulation, tangible mechanisms such as food security should be examined as it has the potential to impact nutrition, diet, and dietary behaviors.[32,33]

Food security is defined as "access by all people at all times to enough food for an active, healthy life."[34] It is impacted by income stability and proximity to food stores, among other variables.[35] Also, availability, stability, and utilization influence food security,[36] which can impact nutritional status. In addition to nutritional status, food security impacts eating regulation.[37] Researchers[37] found a significant relationship between food insecurity and binge eating among a multiethnic sample of adults. Evidence presented here suggests that food security status contributes to diet-related behaviors such as eating regulation.

Overall, African American women confront significant internal and external barriers that may lead to overeating. Thus, this study's objective was to assess the

nutritional needs, cardiovascular disease risk factors, and psychosocial characteristics of African American female caretakers with children 12 years old or younger.

Methods and Materials

This study included individuals who self-identified as female, African American, primary caretakers of young children, between the ages of 18-60 years old, who met this study's low-income definition. A primary caretaker is defined as an individual who provides most of the care for children. Eligible participants reside in Guilford County, North Carolina, and have child(ren) 12 years old or younger living in their home. This study defines low socioeconomic status as less than $2,000 per month per household.[38] Participants were recruited from a YMCA branch in Guilford County, NC, a non-profit that serves adult women, a branch of the Guilford County health department, and a local community organization that serves under-resourced populations. Data were collected from June through November 2018.

Needs Assessment Survey Development

A needs assessment survey for African American female caretakers of young children was designed to identify factors that may help explain cardiovascular disease risk. The survey (see Appendix A) was developed using items from standardized tools that measure eating regulation behaviors and cognitions, autonomy, competence, basic psychological needs, food security, and depressive symptoms. The survey consisted of a food frequency questionnaire and items drawn from the following standardized instruments: Overeating Scale of the Overeating Questionnaire,[39,40] Regulation of Eating Behavior Scale,[41] Eating Self-Efficacy Scale,[42] Basic Psychological Needs Satisfaction

Scale-General,[43] U.S. Household Food Security Survey Module: Six-Item Short Form,[44] Center for Epidemiological Studies Depression Scale (CES-D),[45] and a demographic questionnaire. See Table 1 in Appendix B for the standardized instruments used to create the survey.

The food frequency questionnaire was adapted from the Delta NIRI JHS FFQ, a 158-item food frequency questionnaire that assesses African American adults' dietary intake in the South.[46] The questionnaire measures how frequently foods are eaten. Response options were 1 (*every day*), 2 (*3-4 times a week*), 3 (*every 2-3 weeks*), and 4 (*don't eat*).

The Overeating Questionnaire[39,40] measures behaviors and attitudes related to obesity and the tendency to continue to eat after hunger is satisfied. Response options range from 1 (*not at all*) to 4 (*very often*). An example item is 'I always eat too much.' Cronbach's alpha was .53. The Cronbach's alpha score was low given that the entire questionnaire was not included in the survey, some of the wording in the items was modified to enhance comprehension based on face validation, and an additional item was added to this section of the survey items. A total score from this scale was not utilized for analyses; rather, individual scale items were examined, making a low Cronbach's alpha less of a threat to the validity of the results.

The Regulation of Eating Behavior Scale[41] assesses an individual's motivation to regulate eating behaviors. For example, a participant answered 'yes' or 'no' to "Because I think it is good for me." A participant may be described as being 'identified as extrinsically motivated' if they responded 'yes,' which indicates they value regulating

their eating behaviors but do not perform it for enjoyment. A participant who answered 'yes' to "Because it has become an important part of who I am" may be described as being 'intrinsically motivated' because she values and enjoys regulating her eating behaviors. Response options ranged from 1 (*Not at all true*) to 3 (*Very true*). The Cronbach's alpha was .68. Some of the wording in the items was modified to enhance comprehension. A total score was not calculated for the items from this questionnaire. The entire questionnaire was not included in the survey. All of these factors may have impacted Cronbach's alpha.

The Eating Self-Efficacy Scale[42] measures an individual's perception of their ability to control or resist the urge to overeat in high-risk situations. Responses options ranged from 1 (*Not at all hard*) to 3 (*Very hard*). An example item is 'How difficult is it to control your overeating when you feel restless?' The Cronbach alpha was .79. The scale was used in its original form.

The Basic Psychological Needs Satisfaction Scale-General[43] measures general functioning using Self-Determination Theory constructs. Response options ranged from 1 (*Not at all true*) to 3 (*Very true*). An example item is 'I feel like I am free to decide for myself how to live my life.' The Cronbach's alpha was .21. The scale was used in its original form. The Cronbach's alpha score was low, given that the entire questionnaire was not included in the survey. A total score from this scale was not utilized for analyses; instead, individual scale items were examined, making a low Cronbach's alpha less of a threat to the validity of the results. All items from the original questionnaire were not used and measured different SDT constructs, which might have impacted Cronbach's

alpha. Four of the 24 original items were used, with each selected item representing autonomy and competence.

The U.S. Household Food Security Survey Module: Six-Item Short Form[44] measures household food security in the past 12 months. The number of items to which responses were given and response options varied throughout this section of the survey. An example item is "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more. Was that often, sometimes, or never true for (you/your household) in the last 12 months?" Food security is based on raw scores: 0-1 High or marginal food security, 2-4 low food security, and 5-6 very low food security. Cronbach's alpha was .78. The scale was used in its original form.

The Center for Epidemiological Studies Depression Scale[45] measures depressive symptoms for the past 7 days. Response options ranged from 0 (less than one day) to 3 (5-7 days). An example item is 'I felt lonely, i.e., no one cared about me or wanted to spend time with me.' Some of the wording in the items was modified to enhance comprehension. The Cronbach's alpha was .67. Item modification may have impacted Cronbach's alpha. See Table 2 in Appendix B for scale reliability for the survey.

Data Analysis

A cross-sectional research design was employed for this research. Participants who completed at least 75% of the survey data were included in statistical analysis. Descriptive statistics, including means, were analyzed using SPSS version 25 (IBM Corp. Released 2017). An item-by-item analysis was conducted instead of total scores for individual surveys. A descriptive analysis was performed with the food frequency

questionnaire. Percentages were calculated for the frequency of consumption. Chi-Square analyses compared sociodemographic variables, including Western beauty standards, education and employment, and all foods from the food frequency questionnaire. Response options were collapsed into broader categories to ensure large enough sample sizes for analysis. Original food names such as organ meat and turkey were collapsed and recoded into the categories organ meat recode and turkey recode. Original response options ('*every day*,' '*3-4 times a week*,' '*every 2-3 weeks*,' and '*don't eat*') were collapsed into two categories ('*daily*' and '*rarely*').

Results

Respondents (*N*=82) had a mean age of 36 years old, and 96% identified as African American or Black. All reported completing high school, with 39% reporting college experience. More than 95% of participants reported part-time employment status and being married. Participants reported their monthly income between $500 and $1,500 per month and met the criteria for low food security based on raw scores from the U.S. Household Food Security Survey Module: Six-Item Short Form.[44] Participants reported an average of two children under the age of 12 years old or younger living in the household. The average body mass index was 32 kg/m^2, which is considered obese.[47] Only 20% of participants reported being diagnosed with or taking medication for cardiovascular disease risk factors. High blood pressure was the most frequently reported medical condition (19%), followed by obesity (7%) and diabetes (6%). Forty-four percent described their physical activity level as 'very active,' performing physical activity 5-7

days, while 54% reported performing physical activity 0-4 days per week. Only 18% reported that they subscribe to the Western beauty standard.

Analysis of the food frequency questionnaire (see Table 3, Appendix B) revealed that this sample of African American female caretakers frequently consumed foods high in fat and added sugar content. More than one-third (47%) of participants reported consuming processed and high-fat meat at least three or four times a week. This sample of African American female caretakers rarely consumed organ meats, with 2.8% reporting consumption at least three to four times a week. Additionally, 51% of participants reported using vegetable oil during food preparation. Over 60% of participants reported using high-sugar and high-fat condiments at least three or four times a week, and over one-third of participants (37%) reported consuming sugar-sweetened beverages at the same frequency. While a greater percentage of participants (45%) reported that they consumed refined carbohydrate foods such as baked goods and candy a few times a month, at least 30% reported consuming this type of food at least three to four times a week. Almost 70% of participants reported infrequent intake of ice cream. Study results suggested that whole milk consumption was almost evenly split between daily (43.8%) and rarely (56.2%). Participants reported consuming eggs and chicken at least three or four times a week at 66% and 74%, respectively.

Chi-square analysis revealed statistically significant differences between some foods and sociodemographic variables such as education, employment, and acceptance of the Western beauty standard. For education, of those who reported eating ice cream daily, 25% had less than a high school education compared to those with a college education

(4.2%; *p*=.046). Of those who reported daily steak consumption, 37.5% were employed full-time, and 33% reported no employment (*p*=.025). Of participants who reported eating sugar and/or honey daily, 89% did not subscribe to the Western beauty standard compared to those who do (10%; *p*=.013).

African American female caretakers (96%) perceive themselves as capable of controlling their eating behaviors and do not overeat in various social situations, environments, or when experiencing negative emotions. Data provided evidence that participants' eating regulation falls on a continuum from extrinsic motivation to intrinsic motivation, with 97% falling between identified extrinsic motivation to intrinsic motivation. This means that participants' motivation for regulating eating behaviors was because they moderately or fully internalized their eating behaviors as an important of their dietary behaviors. Ninety-five percent of participants reported confidence in their ability to control their eating in general.

Weight-loss attempts related to advice from a medical professional was not a driving force for weight loss for participants (5%); however, 39% of participants reported that the desire to be healthier was a reason for weight loss. Participants reported experiencing competence in most areas of their life (99%) and receiving support from others regarding their ability to accomplish goals (90%). Fifty percent of participants reported experiencing pressure in most areas of their lives, which may be partially explained by financial challenges. However, 90% reported experiencing volition in decision-making in general. All participants reported experiencing depressive symptoms less than one day in the past 7 days. It should be noted that some of these results should

be interpreted with caution, as many participants did not answer or answered incorrectly questions related to weight-loss attempts and reasons for weight-loss attempts.

Discussion

This research evaluated cardiovascular disease risk of African American female caretakers of young children by identifying diet, diet-related behaviors and cognitions, and the presence of depressive symptoms. Survey data revealed a dietary pattern and cardiovascular disease risk factors that support cardiovascular disease development later in life. For example, those who reported frequent consumption of whole milk may be at higher cardiovascular risk due to the higher fat content in whole milk. Milk intake mirrored the current intake of Americans.[48] The diet of African American female caretakers is varied and includes some cardioprotective foods such as plant-based oils[49] and lean protein. However, there is a more frequent intake of foods with added salt and sugar. Results suggested that subscription to the Western beauty ideal, lower education, and lack of employment may influence the consumption of high-fat and high-sugar foods. The work of Larson, Laska, and Neumark-Sztainer[50] supports this finding, which found that those with lower education and lack of employment were more likely to consume foods with higher fat and added sugar. A larger sample size may have revealed statistically significant differences between these variables. Participants perceived themselves as capable of controlling their eating behaviors and overeating in a variety of contexts. Eating regulation was ordered on a continuum from partially internalized to fully internalized behaviors, indicating that eating regulation occurred with minimal or no external influence. Depressive symptoms were low among participants. Low food

security was present in this sample. Low acceptance of the Western beauty standard was observed. Research suggests that African American women who do not subscribe to the Western beauty standard may accept larger body sizes as a beauty ideal.[29,30] Acceptance of larger body size was related to cultural norms that support excessive food intake,[31] which may help explain eating regulation in this population. Physical activity was reported as 'very active' for more than one-third of participants. Determining whether weight loss attempts and motivation for weight loss attempts may have influenced survey responses is unknown due to the low sample size.

Participants reported frequent consumption of high-energy, nutrient-poor foods and consistent use of saturated fat during food preparation, which, as research suggests, places them at higher risk for cardiovascular disease.[51] Despite being younger, this sample reported experiencing cardiovascular disease risk factors, increasing the likelihood of experiencing cardiovascular disease later in life.[52,53] Participants did not perceive themselves as having difficulty regulating their food intake despite contrary evidence, specifically, weight status in the obese category and frequent consumption of energy-dense foods. Research has suggested a strong relationship between eating regulation, particularly overeating, and excess weight gain.[54,55] If overeating is present in this sample, it is compounding cardiovascular disease risk in a population already at high risk of cardiovascular disease.

This study also suggests that African American female caretakers' health goals, specifically weight loss, are influenced more by a personal desire to be healthy than external factors such as advice from medical professionals. This may imply that African

American female caretakers do not entirely rely upon the medical community to achieve health outcomes. Swierad et al. and Greer and Abel[56,57] found that African Americans may rely on religious or spiritual beliefs as part of their healthcare decision-making process. Participants experienced autonomy and competence in managing their health, which can be assets in health behavior change and maintenance. Their experience of pressure in daily life may be a deterrent to adopting and maintaining new health behaviors, but pressure or stress can be mitigated with enhanced competence.[19] While these results suggest that African American female caretakers possess assets in managing their health, such as positive psychological functioning, there are areas for improvement, such as poorer diet quality and lack of awareness of overeating, which are increasing cardiovascular disease risk. Therefore, further research is warranted to determine how to improve cardiovascular health outcomes in this population.

Some limitations should be considered when drawing conclusions from this study. Cronbach alphas for some survey subsections were lower than generally expected but was due to item modifications. Some results should be interpreted with caution as many participants did not answer or answered incorrectly questions related to weight loss attempts and reasons for weight loss attempts. However, the majority of the participants responded to the remaining survey items. The research design is cross-sectional, and the sample size was small, which prevents making statements about the generalizability of the results. Those who chose to participate in the study may have a greater interest in health or motivation to address individual health-related issues than those who did not participate. All research tools, i.e., the survey, were self-reported, which can introduce

social desirability bias. Social desirability bias was minimized through rapport-building with the researcher and ensuring data collection security and research participation confidentiality protocols were followed. Despite the limitations of this study, the results describe many factors that can be associated with increased cardiovascular risk of a unique segment of the African American population, a population that is deeply impacted by cardiovascular disease and its co-morbid conditions. Additionally, this study highlights the potential discrepancy between perceived eating regulation and cardiovascular disease risk; specifically, respondents reported no overeating issues, yet they have BMIs that fall into the obese category and frequently consume high energy-dense foods.

Implications

The areas of improvement mentioned above are opportunities to intervene through nutrition education. The discrepancy in eating regulation, overeating, and consumption of high energy-dense foods and obesity among this group is an area that requires further investigation. Specifically, it is necessary to understand better how African American caretakers of young children define overeating and its impact on their overall health.

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CHAPTER IV

HOW DO YOU DEFINE "OVEREATING"? AN EXPLORATION OF AFRICAN AMERICAN FEMALE CARETAKERS WITH YOUNG CHILDREN

Introduction

There is no standard definition of eating regulation; however, there are distinct components that comprise most definitions. The dysregulation of metabolic pathways can override physiologically driven mechanisms of eating regulation. For example, appetite dysregulation can occur as a result of a medication side effect or disease state.[1,2] Inadequate food intake can result in poor growth and development, as well as conditions related to vitamin and mineral deficiency.[3] While overconsumption can prevent conditions related to vitamin and mineral deficiency, it increases the likelihood of developing other diet-related comorbid conditions such as obesity, cardiovascular disease, and diabetes.[4] Eating regulation can also be disturbed by a change in behavior that occurs due to exposure to social, cultural, and environmental variables that disrupt typical eating behaviors and the amount of food eaten.[5] For this study, social, cultural, and environmental variables that influence eating regulation will be explored.

Social and Cultural Variables Influence Eating Regulation

Social and cultural influences play an important role in dietary behaviors. African Americans born in the southern United States may have a taste preference for foods that fall within the "soul food" category, as these foods are associated with early African

American history in the United States.[6] This type of meal preparation can be traced to slavery, noting that individuals used creative food preparation methods to increase palatability.[6] Within African American culture, special dishes for celebratory occasions and everyday meals can be prepared using less healthy food preparation methods, including adding salt and frying food in saturated fat,[1] which, if done frequently, may increase diet-related cardiovascular disease risk.[2] Within the umbrella of culture is beauty standards, a concept that is influenced by societal norms.[7] Research suggests that beauty standards may influence eating regulation in women.[8]

Beauty Standards and Eating Regulation

Current knowledge about general dietary behaviors is heavily influenced by the dietary behaviors of non-Hispanic Caucasians as a result of lower research participation of minority populations,[9] which limits generalizability to other populations. The Drive for Thinness Theory, which is often used to explain Western beauty standards and eating regulation, has been applied to African American women but does not fully or adequately explain eating regulation for this population.[10] Research suggests that minority populations do not strictly subscribe to non-Hispanic Caucasian beauty standards and health indicators,[11] suggesting other sociocultural factors guide healthcare decision-making. It has been posited that minority populations, specifically African Americans, accept a larger body size as part of their cultural beauty standard.[12] Parham-Payne et al. revealed that those who were normal weight and overweight desired to gain weight and maintain their current weight, respectively. Webb and colleagues[13] found similar results, specifically that African American women were accepting of a range of body size ideals,

which included larger sizes. In addition to the acceptance of larger body size, hair and skin tone influence African American women's beauty standards. African American women may emphasize hair, body type, message source, and skin tone[11] more than weight and shape, compared to Non-Hispanic Caucasians. While there is no consensus on which beauty standards impact eating regulation in African American adult females, it is apparent that there is a relationship between eating regulation and beauty standards.

African American women report sociocultural factors that influence eating regulation; specifically, family and other social networks' pressure to maintain larger body size, often tied to an obligation to eat larger amounts and less healthy foods[14] at social gatherings, and family member influence on food purchases. Acceptance of larger body size may make overeating more acceptable, giving African American women the license to overeat.

In addition to the current literature, my research has provided preliminary evidence to support the need to examine eating regulation further as a potential cardiovascular disease risk factor for African American female caretakers.[17] Survey results indicate that African American female caretakers do not perceive themselves as having difficulty controlling their eating regulation despite weight status in the obese category and self-reported frequent consumption of energy-dense foods. The lack of awareness of the impact of overeating on cardiovascular disease risk suggests that further investigation into the perception of overeating of the target population is warranted.

Overeating is associated with obesity and other cardiovascular disease risk factors. Given that African American women are more likely to experience more

cardiovascular disease risk factors than other racial/ethnic groups,[18] it is important to understand the drivers associated with it, including overeating. However, because of the many different factors, especially cultural and social, that affect eating behaviors and are unique to specific groups, the way a group defines or related to overeating varies. Thus, the purpose of this study was to understand better what overeating means among African American female caretakers of young children.

Methods and Materials

Participants were recruited via an IRB-approved UNCG email listserv of individuals who fit eligibility requirements of age, race, and gender. Participants were invited to participate in the interview via an email solicitation. Participants indicated an interest in participation by contacting the researcher through email. They were then asked to complete an online eligibility screening questionnaire and a demographic questionnaire. Eligibility screening criteria included self-identification as an African American female, primary caretaker of at least one child under 12 years old, 18-45 years of age, and reside in North Carolina. The sociodemographic questionnaire included age, sex, race, ethnicity, monthly income, education, marital status, and primary caretaker status. See Appendices C and D for the questionnaires. After completing these online questionnaires, participants scheduled an appointment to complete the interview via Zoom or WebEx. Interview appointment reminders were sent one day prior. The researcher conducted audio-recorded interviews that averaged 10 minutes in duration. Participants received a healthy eating handout focused on mindful eating (see Appendix E) and a monetary incentive ($15 Wal-Mart e-gift card).

This research was exploratory using qualitative approaches to understand how African American female caretakers of young children define and understand overeating. Individual semi-structured interviews were used to provide context to the term overeating and to gain a better understanding of eating regulation behaviors for African American female caretakers with young children. This study used a phenomenological approach to guide this research. This approach was appropriate because its purpose is to describe participant experience with a phenomenon. The phenomenological approach allowed participants to describe their experience with overeating and the contexts that promote it, which allowed the researcher to interpret experiences of overeating to arrive at general truths about overeating specific to African American female caretakers with young children. Individual interviews were conducted and produced various themes.

The semi-structured interview guide (see Appendix F) was developed based on a review of literature on overeating and tools that assess eating regulation and overeating. An interview guide included open-ended questions about general health, a definition of overeating, contexts in which overeating occurs, and factors that impact eating regulation in general, including barriers and motivation. The interview guide included an introductory question, key questions, transition questions, and an ending question that were sequenced in a logical yet natural manner that resembled a conversation. The introductory question was used to introduce the interview topic. The key questions focused on defining overeating and emotions, as well as barriers and motivators related to eating regulation. The ending question allowed the participants to provide additional information related to the key questions or their eating habits in general. The researcher

asked follow-up questions for clarification when necessary. Question development was guided by the Satter Eating Competence Inventory (ecSI 2.0),[19] Overeating Scale of the Overeating Questionnaire,[20] Regulation of Eating Behavior Scale,[21] and Eating Self-Efficacy Scale.[22] The semi-structured interview guide was reviewed for face and content validity by nutrition professionals (*n*=2) before conducting the interviews.

The researcher transcribed and coded the interviews. Two independent reviewers (VH and CM) reviewed transcripts, which had a two-fold purpose: 1) ensuring the primary researcher did not introduce bias during coding, and 2) identifying key concepts. The researcher's coded transcripts were compared to the independent reviewers' coded transcripts. Coding discrepancies were reconciled through discussion. Data were collected from May until June 2020.

Data Analysis

Participant demographics were analyzed using descriptive statistics, including age, primary caretaker status, employment status, and education using SPSS v. 25. Content analysis was completed using inductive codes to identify emerging themes. The themes from each interview were recorded. A codebook was created and used to manually analyze data. The principal investigator coded all responses in a line-by-line approach. Coding discrepancies were resolved through discussion and consensus among the researcher and independent reviewers. Quotes were separated by theme.

Results

Results revealed that 100% (*n*=8) of the participants identified as African American females and primary caretakers of children 12 years old or younger. All

identified as non-Hispanic Black. Participants' average age was 33.3 years. Fifty percent of participants reported their household income as greater than $4,000 per month, and 25% reported their household income as less than $2,000 per month. Eighty-seven percent reported having a college education, while 13% reported having a high school education. Thirty-seven percent of participants described their marital status as married, while 25% and 38% described their marital status as single/never married and living with a partner, respectively. One participant reported marital status as divorced/separated. Seventy-five percent reported full-time employment status, while 25% reported currently being unemployed/seeking employment or currently staying at home with children.

Because of the small sample size, theme saturation was not achieved; however, preliminary themes did begin to emerge. These included autonomy for diet, competence and behavioral capacity in performing health behaviors, barriers to eating healthy, cultural influence on diet-related behaviors, behaviors and environments that support or thwart health-related goals, relationships that influence eating habits, and emotions experienced during overeating. In response to the central question: "What does overeating mean for African American adult female caretakers with young children living in North Carolina?" participants provided a variety of definitions. Overeating was described using a variety of concepts ranging from weight status to satiety signals and terms such as 'stuffed' and 'disordered eating.' The phrase 'physically uncomfortable' was used to describe overeating in 50% of the interviews. Individual interviews revealed that participants had a distinct taste preference when overeating. High-energy, carbohydrate-rich foods were preferred when overeating occurred. Overeating events

occurred in the presence of others over 50% of the time. In this study, overeating was defined as dynamic interactions among physical, psychological, cultural, environmental, and social variables that override physiological cues for hunger and satiety.

Autonomy in Diets

Most participants felt that they had the freedom to practice their current eating habits and other health-promoting behaviors such as exercise. A lack of autonomy was observed when interactions with the family impacted eating habits.

> If I did not go and actually do the research myself or get my degree in exercise, I don't think I'd be eating the way I'm now, and I think I would probably be sick.

> Then if you're going out to eat out with family once again, everybody may not be on the same page or the same walk that you're trying to do. Then it does not allow too much room for change. I'm not around people that are negative, criticizing but, you know, "it's not going hurt you to eat one of this or one of that," you know. So what you call peer pressure or whatever.

Competence in Performing Health Behaviors

Most participants perceived themselves as capable of managing eating and other health behaviors. They expressed competence in a variety of diet-related behaviors ranging from meal preparation to avoiding food temptation. Also, they expressed a lack of competence in controlling their eating habits during their menstrual cycle or in situations where there was an opportunity to overeat.

> . . . something as far as cooking, we need to cook our own.

> I will definitely say when I am on my cycle . . . I tend to snack a lot or have weird craving. I'm not really hungry. It's just that I'm craving something sweet or I'm

> craving carbs. I do find in those moments I do think that's overeating. I call it my, you know, those are my days to just do what I want to do.

Behavioral Capacity in Performing Health Behaviors

Participants described behaviors that facilitate and thwart healthy eating behaviors. Knowledge and training, formal and informal, in nutrition and other health-related disciplines, were observed in participant responses that support healthy eating behaviors. Lack of practical experience was noted as an obstacle to eating habits.

> I also think as a mental health counselor, I also think about disordered eating so like being bulimic or having body image distortion issues and eating, . . .

> When I do make it because anything outside of that I tend to get frustrated, especially if I follow a recipe. If one I don't have all the ingredients or two, even if I do and I'm following the recipe and it does not turn out the way I think it should, I tend to get frustrated so I don't want to cook.

Barriers to Healthy Eating

Several barriers were observed in the responses of participants, including family acceptance of dietary practices, cost, time, convenience, residential proximity to food stores, taste, and early childhood dietary practices. These barriers influenced motivation to initiate and/or maintain healthy eating practices.

> Especially when I was working in the office setting, I would get so busy because I work late hours then I forget about healthy. I just want convenience. I just want what is hot, so I go to the fast food.

> Being able to afford the healthy options and the location. Just to get quality veggies and fruit I have to go on the other side of town and of course, you know, the prices are higher.

Cultural Influence

The influence of culture was observed in a variety of ways. Family and work environment were frequently described by participants as influencing eating patterns in positive and negative ways. One participant stated, “It’s a part of our culture. I think as just black people but also my familial culture we celebrate by eating. And so I tend to, you know, get a little bit of everything.”

Behavior and Environments That Support or Block Health-Related Goals

Participants described a number of behaviors and environments that influence health-related goals they set for themselves. Participants described behaviors that support dietary changes and prevent overeating. Participants described themselves as having control over their behaviors.

> Especially during work, I have to be cautious about the snacks I take because I’m sitting at a desk the majority of the day. So I will overeat then if we have like office parties. They put out the doughnuts, the cake, and the chips. Even though I’m not hungry because it’s there I’ll eat it.

> I just made a few changes in my diet and lifestyle maybe like two weeks ago. So cutting back on a lot of carbs, sugar and processed foods. I started running four miles a day.

Relationships

Family relationships were the only relationships mentioned as impacting eating behaviors. Family relationships were supportive and unsupportive in helping participants maintain healthy eating behaviors.

> My kids. . . . Just having the energy to take care of them, do school and work. I notice when I do eat healthy and I do get the proper amount of rest I do have the energy to put into them.
>
> With my family they don't try anymore to try to accommodate us. . . . Now we're just at the point I don't even ask them to even try to accommodate us.

Emotions

A range of emotions was observed in participant responses. Emotions occurred after overeating, primarily with negative emotions predominating. Negative emotions were used to correct future eating behaviors.

> During I think of myself as a really good kind of positive person. So I don't pass judgment against myself when I'm eating before, during or after.
>
> I have had moments after overeating of kinda like shame and guilt like 'why did you just let yourself do that?' or 'you knew better than to eat the whole row of Oreos?'. Like 'how did you do that'? That would be a afterthought. Beforehand sometimes it's just if I just give my body what it's asking for. I'm just psyching myself out. 'I can just do this one little bit' kinda reasoning with it even though I been trying to eat healthy.

Circumstantial Eating Behaviors

Though only half of the sample (*n*=4) provided responses that indicated that special circumstances impacted their current eating behaviors, it is relevant to provide details about these particular circumstances given their current and potential long-term impact. Participants described a change in eating behaviors related to Coronavirus (COVID-19). Participants described a change in food purchase habits, increased frequency of eating without being hungry, and modifying other health behaviors.

> I was intentional, especially during COVID-19 was going on. . . . I did not want to buy a lot of sweets and use it as an excuse to gorge out on things because we can't go out and we want to stock up. I bought a couple of sweet items, but the rest was regular food.
>
> Now with being at home, I find myself snacking, especially at night. I find myself snacking a lot.

Participants reported that weight status and general confidence in abilities influence overeating:

> Maybe potentially someone overeating because of some reason maybe stress or something is prompting that. We have a tendency to have self-control in particular areas so maybe eating is not their particular area of this.
>
> Worrying about how something will turn out or worrying if like I did something correctly.

Discussion

Eating regulation is a complex system of physiological,[23,24] psychological, and social variables[25,26] that influences weight management and disease risk.[27] It is typically observed through a series of behaviors, including purchase, preparation, and consumption. However, there are many intangible processes that contribute to these observable behaviors. These intangible steps are found in the thoughts, attitudes, beliefs, and emotions that shape the value placed on food.[28] Cognitive processes can partially explain whether a person chooses to practice healthy eating regulation or overeating.

Animal and human studies have provided a lot of what is currently known about eating regulation in general; however, less is known about the eating regulation, particularly overeating, for the African American female population. Given the

relationship between excess caloric intake, dysregulated eating and cardiovascular disease risk,[4] and prevalence of cardiovascular disease-related deaths for African Americans,[29] it is important to understand what overeating means to African American females to better understand how it may impact their cardiovascular disease risk.

The development of a definition of overeating for the target population is challenging. The words and phrases used by this sample included vague terms such as 'stuffed' and more clinical phrases such as 'disordered eating' and 'bulimic or body image distortion.' This suggests that there may be heterogeneity within this population regarding what overeating looks like. A wide variety of concepts were observed in participants' comments ranging from weight status to recognition of physical satiety signals. Though weight status was mentioned minimally throughout the interviews, it may be worthy of consideration given the ways in which weight status are used to assign health status. Herman et al.[30] suggest that people still rely on weight status as the main health indicator, despite the fact that current research has introduced the obesity paradox to dispel this notion.[31] Regarding weight and weight status, African American women perceive themselves to be a smaller weight status than what is used in the medical community to indicate overweight or obese status.[16,32] If African American females are using weight status as the main health indicator and perceive their weight status differently than the medical community, it may lead them to overeat. It was noteworthy that despite the recognition of physical satiety signals, the choice to continue eating was influenced by social contact and taste. These drivers have been found to be salient in determining whether to engage in or continuing overeating.[33,34] Motteli and colleagues[34]

found a relationship between women's eating habits and BMI, specifically that women with lower BMI had better diet quality when dining with others who had healthier diets. Taste and enjoyment of the food were particularly important in this sample of African American women. Researchers[35-37] found similar results in studies that show a preference for carbohydrate-rich and high-fat foods when dysregulated eating occurs. Frequent consumption of these foods may place African American females at an increased risk of cardiovascular disease.[27,38] Parallel to the recognition of physical satiety to signal overeating, the feeling of being physically uncomfortable is also used. Dependence on this signal may allow individuals to consume excess calories without awareness of how much food is actually consumed.[39] Lastly, food in the immediate environment was reported as a driver for overeating for participants. Participants noted the challenge in refraining from eating without hunger when their environments made food easily accessible. Research has provided evidence to support this finding. An's study found a direct relationship between increased total caloric, fat, cholesterol and sodium and meals eaten outside the home.[40] The participants in An's research were working caretakers managing multiple obligations which may mean they are more likely to eat meals away from home in food environments with less healthy food options. This study presented some common and unique variables that influence overeating for female caretakers. Consideration of all these variables is important to understand overeating in African American female caretakers.

Overeating, as defined by African American female caretakers, is connected to a host of variables based on psychology—autonomy, competence, and behavioral capacity.

Autonomy represents the full internalization of a behavior that is performed with volition. According to research, people who are autonomously motivated are more likely to persist toward or maintain behavior change for a longer period of time.[41,42] A range of autonomous behavior was observed in interview responses. Some participants perceived their dietary behaviors to be fully self-directed. This can be considered an asset in maintaining new behaviors and allow one to observe the cumulative benefits of practicing healthier eating behaviors. A lack of autonomy was noted in a few interviews, suggesting that dietary behaviors were not fully self-directed by these women. Research suggests that behaviors enacted due to external drivers have less successful outcomes in various areas of life,[43] which may translate to poorer eating regulation such as overeating.

Competence is another theme that emerged during the interviews. In this study, women reported feeling competent in meal preparation, modeling health behaviors, and avoiding temptations to eat some foods. This competence did not transfer to the ability to avoid overeating. It is unclear why competence was not observed with overeating, but it may be related to the emotions experienced while eating. A participant noted that she experienced negative emotions while overeating. Many studies have found a direct relationship between overeating and negative emotions.[44,45] If negative emotions do impact eating regulation in this population, then African American female caretakers may benefit from learning emotion regulation strategies, which may enhance the competence related to managing overeating.

Evidence exists that supports a positive relationship between enhanced behavioral capacity and improved dietary outcomes.[46,47] Both studies found an improvement in

nutrition knowledge following exposure to SCT-based interventions. Based on interview responses, it is suggested that early childhood dietary practices continue to impact dietary behaviors in adulthood. One participant noted that she received minimal dietary restrictions, which was used to explain current barriers to eating healthy as an adult. Inconsistent or absent parental guidance regarding healthy eating and eating regulation may make it challenging to consider adopting and maintaining new dietary habits in adulthood.

Eating in response to stress or change in environment or routine is not uncommon for individuals.[48-50] Individuals may choose to eat as a means to manage stress because food is easily accessible, and it may provide a sense of control and temporary relief to situations perceived to be stressful. Finch and Tomiyama's[51] research confirms this notion, as they found evidence that participants sought out food to temporarily assuage negative emotions brought about by stress. Another study revealed a correlation between high intake of carbohydrate-rich and high-fat foods in women with depression.[52] While this study examined depression instead of stress, it does corroborate that women experiencing negative emotions may consume less healthy foods to deal with negative emotions and circumstances. Similar results were found in participants' responses in this study, with one participant noting that she intentionally limited purchasing sweets during the Coronavirus epidemic as a way to manage her health and caloric intake. When stressful situations are not easily resolved, or feelings of anxiety do not abate following cessation of the stress, people may continue to practice these circumstantial eating behaviors leading to new, less-healthy eating patterns. Nouh, Elfagi, and Omar[53] suggest

that weight gain and food security may be significant dietary outcomes as a result of Coronavirus-related lifestyle changes. These researchers postulate that increased access to food, increased sedentary time, drastic changes to the food system, and economic hardship are contributing factors to a change in dietary behaviors.[53] Similar results were observed in participant responses in this research, with participants describing an increase in eating frequency in the absence of hunger. Based on the unique outcomes of Coronavirus related to diet, it may be suggested that less-healthy eating patterns and diet quality may continue to persist and lead to poor eating regulation.

Self-efficacy has been shown to influence eating regulation, particularly overeating.[54,55] Barbee and Timmerman[54] examined emotional eating, dietary self-efficacy, and binge eating without purging in a group of women at risk of weight gain. Results indicated a relationship between binge eating and emotional eating, as well as dietary self-efficacy. Specific to dietary self-efficacy, those with greater binge-eating severity showed lower dietary self-efficacy, particularly in calorie reduction. Linardon[55] investigated whether eating self-efficacy moderated the relationship between dietary restraint and binge eating in a sample of women in the community and female college students. This study revealed that poorer eating self-efficacy moderated the relationship between flexible dietary restraint and binge eating. Both studies suggest that diet-related self-efficacy should be considered when examining overeating in females. Participants' responses indicated that overeating could be influenced by perceived lacked self-efficacy in general and eating regulation.

Limitations

There are limitations to this study. The sample size was very small, so results are not generalizable to those outside of the study eligibility criteria. The individual interviews were conducted in a non-traditional manner due to the Coronavirus and its health-related restrictions. This entire process was made more challenging due to social distancing and total reliance on video conferencing to conduct the interviews. There was more artificiality throughout this process, which made it difficult to create rapport and may have influenced the tone of the interviews. Due to the small sample size, theme saturation did not occur. Despite these limitations, this study has strengths that can be built upon in future studies. This was an exploratory study that provided insight into eating regulation among an understudied population. This study highlighted salient variables that can be used to develop a definition of overeating for African American females. This information adds to knowledge about a major contributor to weight management and cardiovascular disease risk for minority women. Additionally, it provides evidence of the need to continue research in this area to identify how to improve cardiovascular health outcomes for a population disproportionately burdened with poorer cardiovascular health.

Implications

Study results highlight the need for more research with larger sample sizes to help ensure that the definition of overeating is accurate and comprehensive. A fuller understanding of overeating can be used to develop interventions that focus on overeating in the context of cardiovascular disease risk.

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CHAPTER V

A NUTRITION EDUCATION WORKSHOP DESIGNED TO REDUCE CARDIOVASCULAR DISEASE RISK

Introduction

African Americans are reported to experience hypertension and diabetes mellitus at a greater rate than non-Hispanic Caucasians, Asians, and Hispanics.[1,2] According to The Centers for Disease Control and Prevention (CDC), non-Hispanic African American women have a higher rate of obesity than non-Hispanic Caucasians and non-Hispanic African American men.[3] Cardiovascular disease risk for African American female caretakers may be compounded by parenting demands and resulting fatigue and stress.[4,5] While these diet-related cardiovascular disease risk factors are significant contributors to cardiovascular disease, eating regulation is a salient factor in understanding cardiovascular disease risk. The burden of cardiovascular disease in the African American population has prompted researchers and other health professionals to develop nutrition education interventions designed to reduce cardiovascular risks and, by extension, should focus more narrowly on African American female caretakers due to increased cardiovascular risk.

Nutrition Education Interventions and Their Effects on Cardiovascular Disease Risk

Researchers and interventionists have developed a number of interventions designed to improve cardiovascular health for the target population. Most include some

combination of diet and exercise with the goals of initiating and/or maintaining behavior change. Specific changes to diet often include increases in fruit and vegetable intake or a decrease in highly processed foods, while changes to physical activity typically include increases in frequency, duration, or intensity,[6,7] all of which is done to move people closer to meeting the recommended health goals in the Dietary Guidelines for Americans.[8] Due to higher attrition rates in intervention studies,[9] researchers have begun to consider culture and its impact on behaviors and decision-making[10,11] when developing nutrition education interventions designed to reduce cardiovascular disease risk in African Americans.

Culture and Nutrition Education Interventions

Specific to African American women, culturally-adapted interventions have proven helpful in improving dietary behaviors.[12,13] The incorporation of spirituality into interventions has been successful in promoting behavior change in African Americans.[14] This indicates that cultural adaptions are an appropriate means of getting the target population to be more receptive to health behavior change messaging. This is particularly important for African American female caretakers, given an increased risk of cardiovascular disease co-morbid conditions as well as parental stressors, both of which increase cardiovascular disease risk.[1–4]

Despite the inclusion of culture in interventions designed to address the nutrition and health education needs of African Americans, some interventions are unable to achieve long-term efficacy. The utilization of theory or theoretical constructs has proven to produce effective interventions.[15] Kannan et al.[12] created a culturally relevant

intervention to improve the dietary behaviors of African American women using theory. There is still an integral piece missing from nutrition education interventions designed for African American women—motivation.

Motivation and Its Impact on Eating Regulation

Research has shown that motivation is essential to initiate and sustain behavior change across different contexts.[16,17] An increase in motivation does not always result in long-term behavior change, suggesting that motivation type is just as important.[18] Motivation type, as defined within Self-Determination Theory, has been shown to improve physical activity[18] and dietary behaviors.[19] Research has begun to recognize the effect of motivation type on eating regulation,[20] particularly when autonomous motivation is present. While culture and motivation are important in the development of nutrition education interventions, it is equally important to have the overall development of the intervention guided by theory. Research suggests that theories are helpful in explaining the influence of determinants on health behaviors[15] and, therefore, may improve the efficacy of interventions.

Theoretical Foundation

Current research has shown a relationship between Self-Determination Theory (SDT) and improved health behavior outcomes. Researchers found evidence that autonomous support from important others, such as family members, was associated with improved dietary habits and physical activity in a multiethnic sample.[21] Kinnafick et al.[22] found that enhanced competence was associated with adopting physical activity, suggesting that competence may be important for adopting healthier dietary behaviors.

Social Cognitive Theory (SCT) proposes that action and motivation are determined by personal cognition, behavior, and environmental factors. Social Cognitive Theory has been used to identify and explain the health behaviors of African Americans.[23] Annesi[24] revealed that an increase in self-efficacy for controlled eating and exercise prompted an improvement in emotional eating and physical activity, respectively, in a sample of obese adult women. Jarpe-Ratner et al.[25] provided evidence that an increase in vegetable intake was related to an increase in cooking self-efficacy in low-income Hispanic and African American grade-school children. Social Cognitive Theory and Self-Determination Theory have been used to develop effective interventions that improved the health behaviors of African American women.[22,23] It is possible that the incorporation of SDT and SCT in the development of nutrition education intervention would be appropriate to address the psychological, social, and cultural variables related to cardiovascular disease risk in African American female caretakers.

The objective of this study was to utilize theoretical constructs to revise an existing nutrition education curriculum focused on cardiovascular health for African American female caretakers to include eating regulation and to assess the acceptability of the revised messaging.

Methods and Materials

Participants were recruited via an IRB-approved UNCG email listserv of individuals who fit eligibility requirements of age, race, and gender. Participants were asked to contact the researcher if they wanted to participate in this study. Interested participants contacted the researcher through email. Participants were asked to complete

an online eligibility screening questionnaire and a demographic questionnaire. Eligibility screening criteria included self-identification as an African American primary caretaker, female, 18-45 years of age, and reside in North Carolina. The sociodemographic questionnaire included age, sex, race, ethnicity, monthly income, education, marital status, and primary caretaker status. See Appendices C and D, respectively. Data were collected from June through July 2020.

Original Workshop 4

The Eat Healthy, Be Active Community Workshops Program[26] is designed to meet the nutrition education needs of a racially and socioeconomically diverse population. The workshops are based on the Physical Activity Guidelines and Dietary Guidelines for Americans. Workshop materials include instructor guide, program evaluation form, videos, lesson plans, discussion topics, handouts, and interactive activities. It emphasizes dietary modifications and physical activity strategies proven to improve cardiovascular health. There are six one-hour workshops that focus on healthy eating, healthy meal preparation, eating healthy on a budget, weight loss and maintenance, and integrating healthy diet habits into routine activities. It uses visuals and foods that represent a variety of ethnic and racial populations. It can be used by a variety of health and nutrition professionals. It is not directly guided by the theoretical framework but includes constructs emphasized in Social Cognitive Theory. The Eat Healthy, Be Active Community Workshop does not address motivation in its attempt to improve dietary habits and physical activity. For the purposes of this research, Workshop 4 from the Eat Healthy, Be Active Community Workshops Program, which focuses on

weight loss through diet and physical activity, was chosen to adapt to meet this study's goal.

Revised Workshop 4

The Revised Workshop 4 includes a lesson plan, handouts, and facilitator guide. There is an icebreaker activity, which is done before the lessons begin, that involves identifying fruits and vegetables and possible snack or meal ideas. The facilitator goes over the lesson topic, objectives, and activities for the workshop. The facilitator asks one of the participants to read the Biblical scripture chosen for this workshop and ask the participants to comment on how the lesson topic may be related to the Biblical scripture. The facilitator asks participants to choose a personally meaningful health behavior to work on. As a group, the facilitator asks participants to identify solutions to potential barriers to performing the newly adopted health behavior. Participants participate in activities during the subtopics to reinforce the subtopic lesson. For instance, participants learn how to monitor what they eat using a handout or electronic food diary such as MyFitness Pal. Participants listen to a PowerPoint presentation about diet and cardiovascular disease risk, overeating, and healthier eating regulation tips. There is a "wrap up" section at the end of the workshop to allow for questions and comments.

The Eat Healthy, Be Active Community Workshops Program has the potential to reduce cardiovascular disease for African American female caretakers with my adaptations. The adaptations to Workshop 4 are designed to address overeating and motivation. Since the focus of the workshop was diet and dietary behaviors, the physical activity components were omitted. Motivation was addressed in this workshop by

including regular reflection on personally chosen goals and actively seeking social support for goal accomplishment. It is designed to guide participants to more autonomous motivation by supporting personally chosen health behavior change coupled with basic nutrition knowledge and learning activities encapsulated in culturally appropriate messaging and images. The workshop curriculum is guided by Social Cognitive Theory and Self-Determination Theory, specifically self-efficacy, behavioral capacity, and perceived barriers, as well as autonomy and competence, respectively. This modification was made based on research indicating the benefit of using theory to guide intervention development.[15]

All theoretical constructs are operationally defined to focus on eating regulation in Workshop 4. It includes activities specially designed to move participants to more autonomously-motivated behaviors as it relates to the diet and eating regulation. For example, participants are encouraged to choose a weight management tip to perform. The focus on autonomous motivation was important to support sustained behavior change.[19] An action goal sheet was included to help participants create a plan using measurable outcomes and practical tools. Visuals were chosen to complement the curriculum that may resonate with African American women, including pictures of other ethnic minority women. Health messages emphasized family, spirituality,[27,28] and other concepts suggested to be of importance to African American women. Swierad et al.'s qualitative research[27] examined how ethnic and mainstream cultures impacted the healthcare decision-making of African Americans. Results revealed that African Americans used both cultures in determining dietary intake and physical activity.

Respondents reported that spirituality was considered a positive influence on health. Greer and Abel's research[28] examined how religious or spiritual beliefs impacted adherence to hypertension treatment in African American women. Similar to Swierad et al.'s research,[27] African American women relied on religion or spirituality, specifically belief in God or a higher being and prayer, to manage their health. The inclusion of spirituality in health messaging has shown to be beneficial in helping African Americans connect with health messages.[14] Sattin et al.'s study[14] examined the effects of a faith-based lifestyle intervention on weight, physical activity, and diabetes-related indicators in African Americans. The curriculum used was adapted to include Biblical scriptures. Study results revealed improvements in fasting plasma glucose and greater weight loss in those exposed to the experimental group compared to the control group. This indicates that spiritual or religious beliefs may help African Americans connect with health messaging and therefore support them in making the changes necessary to reap positive health outcomes. These studies suggested that the inclusion of Bible passages associated with the workshop topic was appropriate. A biblical scripture was included in the revised workshop to complement the workshop topic.

Qualitative data revealed constructs from Social Cognitive Theory and Self-Determination Theory were present in the eating regulation behaviors of African American female caretakers. Data revealed that eating behaviors were influenced by COVID-19. Barriers to healthy eating for many people were highlighted in the interviews, including cost, motivation, and family and personal taste preference. Data revealed that African American female caretakers do not frequently use weight status as a

health indicator. Additionally, survey results indicated that this population does not perceive having difficulty with overeating despite weight status. All of these data suggested that additional revisions could strengthen Workshop 4 so health messaging that focused on caring for the family and individual health in all components of the workshop were included. Some of the facilitator's guide was modified to focus less on weight loss. For example, one talking point mentioned losing weight and maintaining a healthy weight, so 'losing weight' was removed. I incorporated activities to enhance behavioral capacity, such as providing mindful eating tools to reduce overeating episodes.

Autonomy is addressed through lecture material that encourages them to choose a new vegetable or fruit to add to their diet. Sections of the workshop that address mindful eating ask participants to share any mindful eating tips they were already practicing, which focused on enhancing competence and improving eating regulation. Perceived barriers are addressed by asking participants to provide solutions to problems related to overeating that were successful or thought would bring success. Improvements in these theory-based constructs are reinforced through lectures and activities that accommodate a variety of learning styles. The PowerPoint presentation addresses education on health conditions related to the overconsumption of nutrient-poor foods and beverages, how to make dietary changes to reduce cardiovascular disease risk, and eating regulation. Interview data from the qualitative study was used to refine the eating regulation section of the PowerPoint, focusing on the influence of the food environment and social networks on eating habits as well as developing an awareness of the physiological and hormonal

mechanisms that regulate hunger and satiety. The revised workshop was reviewed by the researcher and given to eligible participants for feasibility testing.

Participants' Evaluation

Participants were given a consent form, Workshop 4 materials including a PowerPoint presentation, workshop facilitator guide and instructions on how to review the workshop materials, and an evaluation form. Participants reviewed the revised Eat Healthy, Be Active Community Workshop "Tips for Losing Weight and Keeping It Off" while simultaneously comparing it to the original workshop materials. Also, participants reviewed a PowerPoint lecture that emphasized education on the relationship between diet and cardiovascular health as well as mindful eating. The PowerPoint was reviewed because it would be a part of the workshop presentation. Written instructions were reviewed by a nutrition professional for clarity and readability. Participants were asked to rate the following on an electronic evaluation form: appropriateness of message, workshop duration, workshop subtopics order, visuals, and materials using a Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). They reported what they did or did not like about the workshop topics in open-ended questions. See Appendix G for the workshop evaluation form. Participants received a healthy eating handout that focused on mindful eating (see Appendix E) and a monetary incentive ($15 Wal-Mart e-gift card).

Feasibility Testing

Feasibility testing is an important step in intervention development as it provides evidence of what is useful and needs improvement, thus helping to ensure that the intervention will be ready to meet more rigorous testing through efficacy and

effectiveness testing. Feasibility testing, specifically acceptability testing, was conducted on this workshop to determine if the target population would deem it an acceptable means of sharing nutrition and eating regulation information. Acceptability testing occurs when members of the target population provide advice on the appropriateness of messaging, language, visuals, and other components used in the intervention materials. This valuable information can be used by researchers to further evaluate and refine areas of the intervention that require further development.[29]

Data Analysis

Data analysis included descriptive analysis of sociodemographic data using SPSS v. 25.[30] Descriptive statistics included means. The open-ended questions were reviewed by the researcher for content that could be used to revise the workshop.

Results

Participants (*n*=2) identified as African American females and primary caretakers of children 12 years old or younger. Participants' average age was 37 years, with reported household income between $2,000 and $2,900 per month. Both were college graduates and reported current full-time employment. One participant was married, and one was single. Despite recruitment efforts, only two participants completed feasibility testing. It is suspected that the 3-week time-lapse between workshop revisions and recruitment for feasibility testing may have interfered with participation.

Both participants reported that visuals and materials were appropriate, as indicated with a score of 5, which indicates '*Strongly Agree*.' All of the participants reported that the order of the workshop subtopics and messaging were appropriate.

Responses from the open-ended questions revealed that the inclusion of information about cardiovascular disease, as well as steps to take to reduce their risk, was helpful in their understanding of the severity of this condition. Education on weight loss and caloric intake from beverages was reported to be helpful in understanding how diet impacts cardiovascular disease risk. One participant noted that consideration of cultural and ethnic identity should be considered when identifying health status indicators, noting that the body mass index may not be accepted as an appropriate measure of health for African American women and other non-Caucasian women. A participant stated, "It's never any fun hearing the truth when you're used to 'eating good.'" This may suggest that messaging focused on changing food choices is difficult to accept due to habit and taste preference. It was reported that exercise should be included in the workshop messaging when addressing health behavior change.

Discussion

This study aimed to determine if a cardiovascular disease risk reduction workshop would be deemed acceptable by African American female caretakers with young children. Study results revealed that this sample found this workshop to be acceptable.

Religion or spirituality influences the healthcare decisions of some African Americans.[28] Greer and Abel's research[28] examined how spiritual belief influenced hypertension treatment adherence in older African American women. They found that African American women used spirituality to guide their healthcare decision-making. Swierad[27] found similar results in a sample of African American adults. In this study, spirituality was believed to have a positive influence on health. This suggests that

spirituality was appropriate to include in this workshop and should be included when discussing eating regulation with African American female caretakers.

Culture and ethnicity are important considerations in the preference and utilization of health indicators. In a review, Barrera, Castro, Strycker, and Toobert found that cultural adaptions of nutrition education interventions were more effective in improving health outcomes compared to controls.[10] According to Majeed-Ariss, Jackson, Knapp, and Cheater, Black and ethnic minorities' self-management of Type 2 Diabetes was influenced by various concepts, including cultural identity.[31] Specifically, this population wanted healthcare professionals to be aware of and sensitive to their culture. Nierkens et al.'s review[32] extended Majeed-Ariss and colleagues' work by examining the effectiveness of cultural adaptions on health behavior interventions. This review revealed that interventions might be more effective if more than one cultural adaptation and family are included. These studies suggest that the cultural adaptations to Workshop 4 were appropriate, which included images of people with similar physical features, Biblical scriptures, messaging that focused on health indicators relevant to African American women, and workshop facilitator dialogue that included messages about family and other social groups.

Participants reported that visuals, materials, the order of the workshop subtopics, and messaging were appropriate. They reported information from open-ended questions that were used to further refine the workshop, which included the necessity and usefulness of health education about cardiovascular disease and cardiovascular disease risk reduction in African Americans. Specifically, participants found information on

weight loss and assessing caloric intake helpful in appreciating cardiovascular disease risk. This finding was supported in the research of White, Rochell, and Warren,[33] who performed a review of interventions designed to improve the cardiovascular health of African American women. Six of the 14 interventions included in the review emphasized weight loss. While none of the interventions included in the review focused specifically on assessing caloric intake, the majority did focus on a heart-healthy diet, which can include limiting calories from foods high in saturated fat, salt, and added sugar.[34] Additionally, the interventions included in this review that successfully reduced cardiovascular risk include dietary components similar to the ones included in Workshop 4, including education on cardiovascular disease, heart-healthy diet, interactive activities, and enhanced motivation. This may suggest that Workshop 4 may be effective in reducing cardiovascular disease risk in this population.

Health messages focused on changing food eaten may not be easily accepted in African American female caretakers. This should be considered when creating or adapting nutrition education interventions for them. While a change in food patterns is important to reduce cardiovascular disease risk, it is just as important for the target audience to be receptive to the messaging that may occur as a result of increased autonomy and competence. Research suggests that people are better able to maintain new behaviors if these Self-Determination Theory constructs are supported. Silva et al.'s research[18] investigated exercise-related predictors of weight loss maintenance three years post-intervention in overweight and obese women. Results indicated autonomous motivation coupled with sustained exercise regimens were better able to maintain weight

loss than with controlled motivation. Teixeira et al.'s review[19] suggests that enhanced autonomy can support healthy weight management strategies, including eating regulation. This review indicates that change in eating regulation can be sustained when autonomy is enhanced, which occurs when an individual finds personal meaning in the behavior. This may suggest that addressing autonomy in Workshop 4 may help African American female caretakers to be more receptive to health messages and motivated about changing foods in their eating plan.

Lastly, physical activity or exercise was reported as necessary in the discussion about improving heart health in this population. Peterson's research[35] investigated African American women's beliefs about physical activity and evaluated an intervention designed to increase physical activity in African American women. Results suggested that African American women recognize the benefit of physical activity in maintaining good health. This indicates that physical activity should be included in interventions designed to reduce cardiovascular disease risk.

Limitations

This study has limitations that should be considered. A very small sample size makes it difficult to draw preliminary conclusions about the acceptability of the workshop. Future research should replicate this study with a larger sample size to determine the validity of the study results. This study was conducted electronically, which potentially limited the impact of nutrition education materials. It is unknown if participants had difficulty understanding and following instructions given to review the workshop materials. However, participants did not indicate that this may have been a

barrier to review. Additionally, based on comments in the open-ended questions, it did not appear that participants had difficulty following instructions. The researcher completed a readability test on all nutrition education materials to help ensure materials could be comprehended across a wide reading literacy range prior to dissemination. Also, materials were reviewed by a nutrition professional well-versed in the development of nutrition education materials. These limitations may have been minimized if the researcher could have interacted directly with the participants, but due to ongoing health precautions and restrictions related to COVID-19, this was not feasible.

Despite the limitations, this study has a number of strengths. Based on a review of literature, this may be the first cardiovascular-focused workshop designed specifically for African American female caretakers. This study adapted a workshop designed to improve the cardiovascular health of a population that is overly burdened with cardiovascular disease and underrepresented in clinical trials and research. The nutrition education materials were guided by theories that emphasized health behavior change and were culturally relevant to the target population. Additionally, the focus of the workshop went beyond dietary change to include psychosocial components shown to impact cardiovascular health.

Implications

African American women are disproportionately burdened with cardiovascular disease mortality and morbidity due to myriad modifiable challenges. The demands of parenting add another layer of difficulty in managing their cardiovascular health and overall well-being. This study lays the foundation necessary to develop a culturally

acceptable cardiovascular disease risk reduction intervention for African American female caretakers. Future research should consider refining and piloting this workshop, as well as identifying other heart health-oriented materials to include in the workshop, to help ensure health education needs are met, and cardiovascular disease risk improves over time.

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CHAPTER VI

EPILOGUE

My experience with research at the doctoral level has been a series of peaks and valleys. The peaks helped me reach smaller milestones within my research and the doctoral program, while the valleys taught me that I have the motivation and stamina to go further than I thought possible. When smaller goals were postponed and timelines revised, I was forced to take a "breath" and change my focus from the main goal and reflect on the journey. In the journey, I found nuggets of wisdom that I can continue to use in research but can also be applied in life in general.

A major lesson that I learned about the research process, in general, is that it is important to search for and understand my research philosophy with the knowledge that it will evolve as I grow as a researcher. It is important to know how you view the world, as this can "color" research questions, methodology, and data interpretation. I have learned that one research philosophy is not better than another, simply a different way of interpreting the world. Differing research philosophies can make it challenging to find consensus among scientists with opposing philosophies but also offers the opportunity to think deeper about our work and create better solutions.

One of the biggest "nuggets" of wisdom I acquired in community-based research is the value of networking. It occurred at all levels of my graduate careers but was most evident during my work in the community. My research required developing professional

relationships with organizations in the community for participant recruitment. While working with these organizations, I learned that reciprocity was important in initiating and maintaining these relationships. I learned to humble myself and listen more, which allowed me to better understand the impact my research could have on community members. In my opinion, not all information gained during networking was beneficial to my research; however, I realized that allowing people to be heard is an important part of community work.

As a natural introvert, networking and public speaking are not easy for me. However, I do enjoy working individually with people, so participant recruitment was enjoyable. Speaking at community meetings could be anxiety-inducing, but a mental reminder of why my work is important helped me speak with conviction and a little less nervousness. Talking with participants reinforced why I enjoy community work, and it made the valleys seem a little less daunting. Doing the work to help a community thrive is more important at the end of the day than any anxiety I might experience.

As nerve-racking as public speaking can be, global health pandemics, namely COVID-19, caused another level of uneasiness for personal and professional reasons. I was and continue to be concerned for my welfare and others, but I was equally concerned about completing my research. I had planned the final phase of my research and was ready to begin. Literally, the world stopped and I, like everyone else, stood flabbergasted. I did not know if I could move forward with my research or if I should. I had to quickly come up with a plan B, which meant much extra planning to make sure I could move forward with my research in the best and safest way possible. Fortunately, I completed

the last phase of research with the help of family, friends, and colleagues, who served as cheerleaders and mentors.

So out of all of these lessons, the greatest lesson learned is to have multiple plans, be flexible, and walk in the knowledge that “It’s all going to work out.”

APPENDIX A

NEEDS ASSESSMENT SURVEY

How often do you eat these foods?	Everyday	3-4 times/week	Every 2-3 weeks	Don't eat
Organ Meat such as liver, etc.				
Processed Meat: bacon, sausage,hotdog, etc.				
Red Meat				
Hamburger (beef)				
Steak (beef)				
Other Protein Sources				
Eggs				
Chicken				
Turkey				
Fast-food (meal or individual items)				
Cheeseburger				
Taco				
French fries				
Sugar-sweetened beverages				
Punch				
Soda				
Sweet Tea				
Sweets				
Baked goods such as pie, cookies, cake				
Muffins				
Candy				
Oils/Fat				
Vegetable oil				
Lard (Shortening)				
Butter or Margarine				
Condiments				
Sugar or honey				
Creamer				
Salad Dressing, Ketchup, Mustard				
Dairy				
Whole milk				
Ice cream				
Cheese: American, Swiss, Cheddar, etc.				
Circle all that apply below.				
Do you usually **Fry Bake Steam Boil** your food?				

Food Security Module:

INSTRUCTIONS: Select the appropriate response from choices depending on the number of persons and number of adults in the household.

HH3. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

The first statement is, "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?
[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH4. "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?
[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?
[ ] Yes
[ ] No (Skip AD1a and move to AD2)
[ ] DK (Skip AD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?
[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?
[ ] Yes
[ ] No
[ ] DK

AD3. In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?
[ ] Yes
[ ] No
[ ] DK

If you answered "yes," "Almost every month," or "Often true," please stop here.

This section will ask you how you typically eat alone and in various social situations.

Instructions: Please circle how much you agree with each item on a scale of 'Not at all' to 'Quite a bit.' Circle the answer option that best represents you in the past six months.

1 2 3 4
Not at all A little bit Kind of Often Very Often

1 2 3 4
Not at all A little bit Kind of Often Very Often
I always eat too much.

1 2 3 4
Not at all A little bit Kind of Often Very Often
I can't say no to food at parties.

1 2 3 4
Not at all A little bit Kind of Often Very Often
I feel I should always eat everything on my plate.

1 2 3 4
Not at all A little bit Kind of Often Very Often
I have gone on an eating binge i.e., eating a large amount of food that makes one feel uncomfortably full or eating a large amount of food when not physically hungry.

Yes No
I hide the fact that I eat too much from other people.

1 2 3 4
Not at all A little bit Kind of Often Very Often
If you answered 'yes', please indicate how frequently you do this.

1 2 3 4
Not at all A little bit Kind of Often Very Often
I stuff myself when I eat i.e., eat until uncomfortably full and/or not physically hungry.

This section will ask you how confident you feel in controlling your eating.

Instructions: For statements below you should rate the likelihood that you would have problems controlling your overeating (eating more than you or others think you should) in each of the situations listed in the past six months, using this scale:
1 2 3
Not hard at all Kind of hard Very hard

Please complete every item by circling the answer option that best represents you.

1 2 3
Not hard at all Kind of hard Very hard
How difficult is it to control your overeating after work or school.

1 2 3
Not hard at all Kind of hard Very hard
How difficult is it to control your overeating when you feel restless.

1 2 3
Not hard at all Kind of hard Very hard
How difficult is it to control your overeating when tense.

1 2 3
Not hard at all Kind of hard Very hard
How difficult is it to control your overeating with friends.

This section will ask you questions about why you have typically eaten the way you have in the past six months. Circle yes or no for each statement.

For the satisfaction of eating healthy. Yes No

Because it has become an important part of who I am. Yes No

Because I think it is good for me. Yes No

Because I believe I must absolutely be thin. Yes No

Because other people insist I do. Yes No

This section will ask you about how you have been doing in general.

Instructions: Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it has been for you in the past six months. Circle the answer option that best represents you. Use the following scale to respond:

not at all true somewhat true very true
1 2 3

1 2 3
Not at all true Somewhat true Very true
I feel like I am free to decide for myself how to live my life.

1 2 3
Not at all true Somewhat true Very true
I feel pressured in most areas of my life in general.

1 2 3
Not at all true Somewhat true Very true
Often, I do not feel very capable in general.

1 2 3
Not at all true Somewhat true Very true
People I know tell me I am good at what I do.

This section will ask you how you have been feeling lately.

Instructions: Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt (or behaved) this way during the past week. Circle one answer on each line.

0 Rarely or none of the time (<1 day)
1 Some or a little of the time (1-2 days)

2 Occasionally or a most of the time (3-4 days)
3 All of the time (5-7 days)

0 1 2 3
Less than1 day 1-2 days 3-4 days 5-7 days
I could not get "going" i.e., did not feel like doing my regular routine.

0 1 2 3
Less than1 day 1-2 days 3-4 days 5-7 days
I felt lonely i.e., no one cared about me or wanted to spend time with me.

0 1 2 3
Less than1 day 1-2 days 3-4 days 5-7 days
I felt sad i.e., crying, feeling down, etc.

AGE (in years): _____

SEX/GENDER (circle one):
1. Male
2. Female
3. Other (please write in your response) _____

RACE (circle one):
1. Caucasian
2. Black or African-American
3. Native American
4. Asian
5. American Indian or Alaskan Native
6. Native Hawaiian or Pacific Islander
7. Multiracial
8. Other _____

ETHNICITY (circle one):
1. non-Hispanic White
2. non-Hispanic Black
3. Hispanic or Latino

EDUCATION (circle one):
1. Less than High School
2. Completed High School
3. Some college
4. College graduate

5. Post college

What is your current employment status? (circle one):
1. Full time
2. Part time
3. Unemployed/Seeking Employment
4. Currently stay at home with my children

What is your current marital status?
1. Single/Never Married
2. Married
3. Divorced/Separated
4. Widowed
5. Living with a partner
6. Don't want to answer

How many children are living in your household? _____

Are you the primary caretaker for children (under the age of 18 years old) in your home?
1. Yes
2. No

What is your current weight (write in pounds):_____pounds

What is your current height (write in feet and inches):_____feet _____inches

Has a doctor or nurse diagnosed you with or provided a prescription medication for any of the following physical problems (circle as many that apply to you in the past or currently):
1. Diabetes
2. High Blood Pressure
3. Obesity
4. Heart Problems
5. Stroke
6. Cancer (breast, colon, lung, ovarian)
7. High LDL or low HDL
8. Other (please write in) _____

How physically active have you been in the past 6 months (including activities such as household chores, childcare, walking to and from your car, please circle one):
a. low activity (0-2 days 30 minute per session per week)
b. somewhat active (3-4 days 30 minutes per session per week)
c. very active (5-7 days 30 minutes per session per week)

Are you actively trying to lose weight? (Circle one. If you answer 'no', skip to the statement on the next page marked with an *****.)

1. Yes
2. No

If yes, how long have you attempted to lose weight this time?

1. Less than 6 months
2. More than 6 months

If yes, why are you trying to lose weight? (Choose all that apply by putting an 'x' beside it. If you mark more than one with an 'x', rank the most important statement with the number one (1).)

My doctor told me I had to
I want to be healthier
I want to look better/fit into smaller clothing
My family/spouse/children want me to
I want to take better care of my family

*****In the past 6 months, please circle all that describe your effort to lose weight (If you circle more than one, rank the one that you have done most recently with the number one (1)):

I am changing my diet but not physical activity.
I am changing my diet and physical activity levels.
I am more active but have not changed my diet.
I am taking weight loss medication or supplement (vitamin, herbal, etc.).
Other (please write in response) _____

Please respond to the statement below by circling 'Yes' or 'No'.

A smaller or thin body should be the beauty ideal for women.
Yes No

APPENDIX B

CHAPTER III TABLES

Table 1. Needs Assessment Tools

Tool	Measure	Definition
FFQ	Dietary intake pattern	1=everyday; 2=3-4 times/ wk.; 3=every 2-3 weeks; 4=don't eat
Food Security Module	Food security in a household in the past 12 months	High or marginal food secure; low food secure; very low food secure raw score 0-6
Overeating Questionnaire	measures behaviors and attitudes related to obesity as well as the tendency to continue to eat after hunger is satisfied	Low; Average; High; Very high 0-32
Eating Self-Efficacy Scale	individual's perception of their ability to control or resist the urge to overeat in high-risk situations	25-175; higher scores indicate less eating self-efficacy
Regulation of Eating Behavior Scale	individual's motivation to regulate eating behaviors	Intrinsic; Integrated regulation; Identified regulation; Introjected regulation; External regulation; Amotivation
Basic Psychological Needs Satisfaction Scale-General	general functioning using Self-Determination Theory	Autonomous; Competence, Relatedness
Center for Epidemiological Studies- Depression	depressive symptoms for the past seven days	0-60; score of 16 or > may suggest risk of clinical depression
Demographic Questionnaire	age, gender, race, ethnicity, education, income, employment, marital and caretaker status; number of children in the household, height, weight, cardiovascular disease risk factors, physical activity level, weight loss attempts, reasons for weight loss attempts, length of time of weight loss attempt and acceptance of Western beauty standard	

Table 2. Scale Reliability Table

Scale	Cronbach Alpha
Eating Self-efficacy Scale	.79
Regulation of Eating Behavior Scale	.68
Center for Epidemiological Scale-Depression	.67
Overeating Questionnaire-Overeating Scale	.53
Basic Psychological Needs Scale-General	.21
U.S. Household Food Security Survey Module: Six-Item Short Form	.78

Table 3. Food Frequency Table

	Percent Daily	Percent 3-4/weeks	Percent Every 2-3 weeks	Percent Don't Eat
Protein				
Organ Meat	1.4	1.4	21.9	75.3
Processed Meat	11.5	38.5	42.3	7.7
Beef Steak	3.9	27.3	54.5	14.3
Beef Hamburger	6.3	40.5	49.4	3.8
Lean Protein				
Eggs	29.1	36.7	26.6	7.6
Chicken	21.8	52.6	23.1	2.5
Turkey	10.3	28.2	47.4	14.1
Dairy				
Whole Milk	20.0	23.8	26.2	30.0
Ice Cream	9.5	23.0	60.8	6.7
Cheese	25.6	47.4	24.4	2.6
Refined Carbohydrates				
Cheeseburger	3.7	27.5	45.0	23.8
Taco	3.8	11.2	52.5	32.5
French Fries	10.3	26.9	48.7	14.1
Baked Goods	14.3	37.7	36.4	11.6
Muffins	2.6	20.5	51.3	25.6
Candy	18.1	27.3	35.1	19.5
Sugar Sweetened Beverages				
Punch	12.8	24.4	26.9	35.9
Soda	23.7	25.0	25.0	26.3
Sweet Tea	12.8	29.5	33.3	24.4
Saturated Fats/Oils				
Vegetable Oil	14.1	37.2	39.7	9.0
Lard (Shortening)	4.1	9.6	9.6	76.7
Butter Margarine	22.7	46.7	26.7	3.9
Condiments				
Sugar Honey	34.6	35.7	23.5	6.2
Creamer	21.5	20.3	21.5	36.7
Salad Dressing/Ketchup/Mustard	24.7	43.2	29.6	2.5

APPENDIX C

RESEARCH PARTICIPATION ELIGIBILITY SCREENING

Read each question and choose one answer.

Q1 Do you identify as African American?

- ○ Yes
- ○ No

Q2 Do you identify as female?

- ○ Yes
- ○ No

Q3 Are you between the ages of 18 and 45?

- ○ Yes
- ○ No

Q4 Are you responsible for providing most of the care for children 12 years old or younger?

- ○ Yes
- ○ No

Q5 Do you live in North Carolina?

- ○ Yes
- ○ No

APPENDIX D

SOCIODEMOGRAPHIC QUESTIONNAIRE

Q1 Please type your age in years.

_____

Q2 SEX/GENDER (choose one):

- ○ Male
- ○ Female
- ○ Other _____

Q3 RACE (choose one):

- ○ Caucasian
- ○ Black or African American
- ○ American Indian or Alaskan Native
- ○ Asian
- ○ Native Hawaiian or Pacific Islander
- ○ Multiracial
- ○ Other _____

Q4 Ethnicity (choose one):

- ○ non-Hispanic White
- ○ non-Hispanic Black
- ○ Hispanic or Latino

Q5 How much money does your house take in each month? (choose one):

- ○ Less than$2000
- ○ $2000-2999
- ○ $3,000-3,500
- ○ $3,500-4,000
- ○ Greater than $4,000

Q6 What is your highest level of education? (choose one):

- ○ Less than High School
- ○ Completed High School
- ○ Some college
- ○ College Graduate
- ○ Post-college

Q7 What is your current employment status? (choose one):

- ○ Full time
- ○ Part time
- ○ Unemployed/Seeking Employment
- ○ Currently staying at home with my children

Q8 What is your current marital status? (choose one):

- ○ Single/Never Married
- ○ Married
- ○ Divorced/Separated
- ○ Widowed
- ○ Living with a partner
- ○ Don’t want to answer

Q9 Are you the primary caretaker for children (under the age of 18 years old) in your home? (choose one):

- ○ Yes
- ○ No

APPENDIX E

MINDFULNESS TIPS FOR EATING

Moderation—enjoy small portions

Slow down and savor your favorite treats

Take smaller bites; cut food into smaller pieces; take smaller portions

It takes 20 min for your body to recognize that you are satisfied; wait to grab seconds!

Be mindful of your body's hunger and full cues; bring all your senses to the meal!

Ask yourself: "Am I still enjoying this?"

Enjoy the flavor, smell, texture

Enjoy conversation with family to extend meal

Avoid Distracted Eating

Socialize away from the food

Distracted eating may increase calorie consumption
Example: watching TV while eating; mindless eating

When cravings are present, do a fun non-food activity for a few minutes

If cravings don't pass after a few minutes, drink water/low-calorie beverage

Thirst can be mistaken for hunger; be mindful of what your body needs

Try engaging in non-food activities with friends/family/co-workers

REFERENCES

https://www.health.harvard.edu/staying-healthy/8-steps-to-mindful-eating

https://www.livestrong.com/article/480254-how-long-does-it-take-your-brain-to-register-that-the-stomach-is-full/

APPENDIX F

FOCUS GROUP INTERVIEW GUIDE

(Engagement Question) You hear a lot about what you eat and how you eat can affect your health. We are going to focus on how you eat. Do you eat slowly and pay attention to the food OR eat fast with little or no attention to the food?

"Great! Now we are going to focus on another aspect of how we eat: overeating."

(Opening Question) What comes to mind when you hear the word 'overeating'?

(Key Question) "Tell me about times that you overeat."

(Probing Question, asked if necessary) What are you doing, and where are you usually when overeating?

(Probing Question, asked if necessary) Tell me about any emotions you experience before, during, and after overeating.

(Transition Question) How would you describe your health currently?

(Key Question) What comes to mind when you hear the phrase 'eat healthy'?

(Key Question) What motivates you to eat the way you do now/eat healthy?

(Key Question) Tell me barriers to eating healthy with family, friends, or co-workers

(Additional Information Question) Show me what a typical portion of {insert food} is for you and then what portion would demonstrate 'overeating' using this bowl and {insert measuring utensil}.

(Exit Question) Is there anything else you would like to add to our discussion about how you eat?

APPENDIX G

WORKSHOP 4 EVALUATION FORM

Messaging for the nutrition education workshop was appropriate	Strongly Disagree=1 Disagree=2 Neutral=3 Agree=4 Strongly Agree=5
Workshop duration was appropriate	Strongly Disagree=1 Disagree=2 Neutral=3 Agree=4 Strongly Agree=5
The order in which the workshop topics were presented was appropriate	Strongly Disagree=1 Disagree=2 Neutral=3 Agree=4 Strongly Agree=5
Visuals used throughout the program and in program materials were appropriate	Strongly Disagree=1 Disagree=2 Neutral=3 Agree=4 Strongly Agree=5
Program materials were appropriate	Strongly Disagree=1 Disagree=2 Neutral=3 Agree=4 Strongly Agree=5
Which topic(s) in the workshop did you like most? - _____	
What did you like about the topic(s)? _____	
Which topics in the workshop did you like the least? _____	
What would you change about the topic(s)? _____	